

Access DB# 157960

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: GREG DELCOTTO Examiner #: 72268 Date: 6/28/05  
Art Unit: 1751 Phone Number: 202-272-1312 Serial Number: 1014675  
Mail Box and Bldg/Room Location: 9A39 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: ~~1014675~~ 10166775  
Inventors (please provide full names): ~~ANDREA ZANARDI, ITALO ACCARDI~~  
① ANDREA ZANARDI ② ITALO ACCARDI  
Earliest Priority Filing Date: 7/30/02

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf - Cntr

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

JUN 30 2005

Pat. & T.M. Office

PLEASE SEARCH

- HYPOCHLORITES IN COMBINATION  
WITH,  
- HINDERED AMINES  
(\* SEE CLAIM 1 AND CLAIM 2)

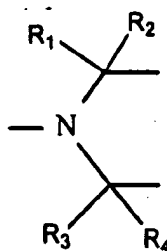
## STAFF USE ONLY

|                                    | Type of Search        | Vendors and cost where applicable |
|------------------------------------|-----------------------|-----------------------------------|
| Searcher: <u>22</u>                | NA Sequence (#) _____ | STN _____                         |
| Searcher Phone #: _____            | AA Sequence (#) _____ | Dialog _____                      |
| Searcher Location: _____           | Structure (#) _____   | Questel/Orbit _____               |
| Date Searcher Picked Up: _____     | Bibliographic _____   | Dr.Link _____                     |
| Date Completed: <u>7-12-05</u>     | Litigation _____      | Lexis/Nexis _____                 |
| Searcher Prep & Review Time: _____ | Fulltext _____        | Sequence Systems _____            |
| Clerical Prep Time: _____          | Patent Family _____   | WWW/Internet _____                |
| Online Time: _____                 | Other _____           | Other (specify) _____             |

10/616775

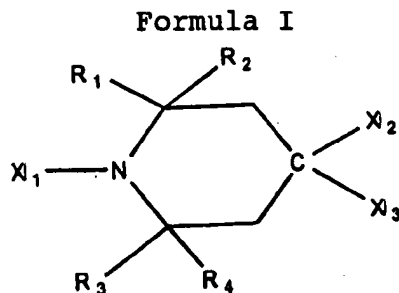
AMENDMENT TO THE CLAIMS

1. (Original) Method for stabilising the viscosity and/or the active chlorine content of liquid compositions containing alkali or alkaline-earth hypochlorites, comprising the addition to said compositions of 0.001% to 5% by weight of compounds belonging to the class of hindered amines containing the group:



wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be the same or different, represent methyl or ethyl.

2. (Original) Method as claimed in claim 1 wherein the hindered amine has the general formula (I):



wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be the same or different, represent methyl or ethyl; X<sub>1</sub> represents H, methyl or ethyl, an oxygen atom, an -OH group or an OR<sub>5</sub> group wherein R<sub>5</sub> represents linear or branched C<sub>1</sub>-C<sub>4</sub> or cyclohexyl; X<sub>2</sub> represents the groups -OH or -NHR<sub>5</sub>, wherein R<sub>5</sub> has the meaning

1-10 method  
16 composition of matter

described above; or  $X_2$  and  $X_3$ , taken together represent an oxygen atom.

3. (Original) Method as claimed in claim 2 wherein groups  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  represent methyl.

4. (Original) Method as claimed in claim 2, wherein  $X_1$  represents oxygen,  $X_2$  is hydrogen,  $X_3$  is OH and groups  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  represent methyl.

5. (Original) Method as claimed in claim 2 wherein  $X_1$  and  $X_2$  represent hydrogen,  $X_3$  is OH, and groups  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  represent methyl.

6. (Currently amended) Method as claimed in claims 1-5 Claim 1 wherein liquid compositions containing active chlorine are thickened with soluble or water-dispersible polymers.

7. (Original) Method as claimed in claim 6 wherein the thickening polymers are homo- or co-polymers of acrylic acid.

8. (Original) Method as claimed in claim 6 wherein the thickening polymers are homo- or co-polymers of cross-linked acrylic acid.

9. (Currently amended) Method as claimed in claims 1 to 5 Claim 1 wherein the amount of stabiliser is between 0.005% and 3% by weight.

10. (Currently amended) Method as claimed in claims 1 to 5 Claim 1 wherein the active chlorine is present in the amount of between 0.5% and 10% by weight of the liquid composition.

11 -15. (Cancelled)

16. (New) A stabilized detergent composition prepared according to the method of Claim 1 for domestic and industrial cleaning and disinfection which may contain chelating agents of metal ions.

=> file reg

FILE 'REGISTRY' ENTERED AT 18:32:13 ON 12 JUL 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2005 American Chemical Society (ACS)

=> display history full 11-

L1 FILE 'LREGISTRY' ENTERED AT 17:23:09 ON 12 JUL 2005  
STR

L2 FILE 'REGISTRY' ENTERED AT 17:29:53 ON 12 JUL 2005  
SCR 966

L3 30 SEA SSS SAM L1 AND L2

L4 FILE 'LREGISTRY' ENTERED AT 17:30:39 ON 12 JUL 2005  
STR L1

L5 FILE 'REGISTRY' ENTERED AT 17:35:33 ON 12 JUL 2005  
50 SEA SSS SAM L4 AND L2

L6 SCR 2043

L7 50 SEA SSS SAM L4 AND L2 NOT L6

L8 25110 SEA SSS FUL L4 AND L2 NOT L6  
SAV TEM L8 DEL775/A  
E LITHIUM HYPOCHLORITE/CN

L9 1 SEA "LITHIUM HYPOCHLORITE"/CN  
E SODIUM HYPOCHLORITE/CN

L10 1 SEA "SODIUM HYPOCHLORITE"/CN  
E POTASSIUM HYPOCHLORITE/CN

L11 1 SEA "POTASSIUM HYPOCHLORITE"/CN  
E MAGNESIUM HYPOCHLORITE/CN

L12 1 SEA "MAGNESIUM HYPOCHLORITE"/CN  
E CALCIUM HYPOCHLORITE/CN

L13 1 SEA "CALCIUM HYPOCHLORITE"/CN  
E BARIUM HYPOCHLORITE/CN

L14 1 SEA "BARIUM HYPOCHLORITE"/CN  
E STRONTIUM HYPOCHLORITE/CN

L15 1 SEA "STRONTIUM HYPOCHLORITE"/CN

L16 7 SEA (L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15)

L17 FILE 'HCA' ENTERED AT 17:49:15 ON 12 JUL 2005  
16785 SEA L8

L18 32600 SEA L16 OR HYPOCHLORITE# OR LICLO OR LIOCL OR NACLO OR  
NAOCL OR KCLO OR KOCL

L19 2426 SEA (MG OR CA OR BA OR SR) (A) (CLO OR OCL)

L20 243 SEA L17 AND (L18 OR L19)  
L21 QUE STABIL? OR STABL?  
L22 QUE VISC? OR RHEOL?  
L23 29 SEA L20 AND L21  
L24 7 SEA L20 AND L22  
L25 3 SEA L23 AND L24  
L26 957641 SEA (MIXT# OR MIXTURE? OR BLEND? OR ADMIX? OR COMMIX? OR  
IMMIX? OR INTERMIX? OR COMPOSIT? OR COMPN# OR COMPSN# OR  
FORMULAT? OR INTERSPER?)/TI  
L27 10 SEA L20 AND L26  
L28 4615 SEA ACTIVE?(2A) (CHLORINE# OR CL OR CL2)

FILE 'REGISTRY' ENTERED AT 18:07:39 ON 12 JUL 2005

L29 1 SEA 14380-61-1

FILE 'HCA' ENTERED AT 18:08:11 ON 12 JUL 2005

L30 2012 SEA L29  
L31 9 SEA L30 AND L17  
L32 3 SEA L31 AND (L21 OR L22 OR L26)  
E DISINFECTANTS/CV  
L33 6285 SEA DISINFECTANTS/CV  
L34 243 SEA L17 AND (L18 OR L19 OR L30)  
L35 2 SEA L34 AND L33  
L36 5 SEA L34 AND L28  
ACT CLEAN/Q

-----  
L37 QUE (CLEAN? OR LAUND? OR RINS? OR DETERS? OR ABSTERS? OR  
EDULCORAT? OR SANIT? OR HYGIEN? OR DISINFECT? OR  
DECONTAMINA? OR STERILI? OR ABLUT? OR ELUTRIAT? OR  
L38 SCRUB? OR SCOUR? OR DEGREAS? OR LIXIV?)/BI,AB  
QUE (MIX? OR BLEND? OR ADMIX? OR COMMIX? OR IMMIX? OR  
INTERMIX? OR DOPE# OR DOPING# OR IMPREGNAT? OR COMPOSIT?  
OR COMPN# OR COMPSN# OR FORMULAT? OR COMBINAT? OR  
L39 INTERSPER? OR AMALGAM?)/BI,AB  
QUE CLEANER? OR CLEANSER? OR LAUND? OR DISHWASH? OR (L37  
OR DETERG? OR ABSTERG?) (2A) (L38 OR SOLUTION? OR SOLN# OR  
FLUX? OR LIQ# OR LIQUID# OR TILE# OR TILING# OR HARD?(A)S  
URFACE? OR FLOOR? OR CARPET? OR DISH? OR KITCHEN? OR  
BATH## OR BATHROOM?)

-----  
L40 108323 SEA CLEANER? OR CLEANSER? OR LAUND? OR DISHWASH? OR (L37  
OR DETERG? OR ABSTERG?) (2A) (L38 OR SOLUTION? OR SOLN# OR  
FLUX? OR LIQ# OR LIQUID# OR TILE# OR TILING# OR HARD?(A)S  
URFACE? OR FLOOR? OR CARPET? OR DISH? OR KITCHEN? OR  
BATH## OR BATHROOM?)  
L41 11 SEA L34 AND L40  
L42 166308 SEA DISINFECT? OR DECONTAMIN? OR STERIL?  
L43 3 SEA L34 AND L42

FILE 'LCA' ENTERED AT 18:18:28 ON 12 JUL 2005

L44 15216 SEA (MIX? OR BLEND? OR ADMIX? OR COMMIX? OR IMMIX? OR  
INTERMIX? OR DOPE# OR DOPING# OR DOPANT? OR IMPREGNAT?  
OR COMPOSIT? OR COMPN# OR COMPSN# OR FORMULAT? OR  
COMBINAT? OR INTERSPER? OR AMALGAM?)/BI,AB

FILE 'HCA' ENTERED AT 18:19:37 ON 12 JUL 2005

L45 343886 SEA (LIQ# OR LIQUID? OR FLUID? OR AQ# OR AQUEOUS? OR  
WATER? OR H2O) (2A) (MIX? OR BLEND? OR ADMIX? OR COMMIX?  
OR IMMIX? OR INTERMIX? OR COMPOSIT? OR COMPN# OR COMPSN#  
OR FORMULAT? OR COMBINAT?)

L46 11 SEA L34 AND L45

L47 168591 SEA CHELAT? OR SEQUEST? OR BIDENTAT? OR TRIDENTAT? OR  
TETRADENTAT?

L48 9 SEA L34 AND L47  
SEL L25 2 RN

FILE 'REGISTRY' ENTERED AT 18:26:09 ON 12 JUL 2005

L49 12 SEA (13598-36-2/BI OR 138789-85-2/BI OR 14380-61-1/BI OR

L50 3 SEA L49 AND PMS/CI  
E ACRYLIC ACID/CN

L51 1 SEA "ACRYLIC ACID"/CN  
E ACRYLIC ACID HOMOPOLYMER/CN

L52 1 SEA "ACRYLIC ACID HOMOPOLYMER"/CN  
E METHACRYLIC ACID HOMOPOLYMER/CN

L53 1 SEA "METHACRYLIC ACID HOMOPOLYMER"/CN  
E METHACRYLIC ACID/CN

L54 1 SEA "METHACRYLIC ACID"/CN

L55 7 SEA (L50 OR L51 OR L52 OR L53 OR L54)

FILE 'HCA' ENTERED AT 18:27:59 ON 12 JUL 2005

L56 69689 SEA L55

L57 3 SEA L34 AND L56

L58 QUE ?ACRYLIC? OR ?ACRYLAT?

L59 9 SEA L34 AND L58

L60 45 SEA L24 OR L25 OR L27 OR L32 OR L35 OR L36 OR L41 OR L43  
OR L46 OR L48 OR L57 OR L59

L61 17 SEA L23 NOT L60

L62 36 SEA L60 AND (1840-2002/PY OR 1840-2002/PRY)

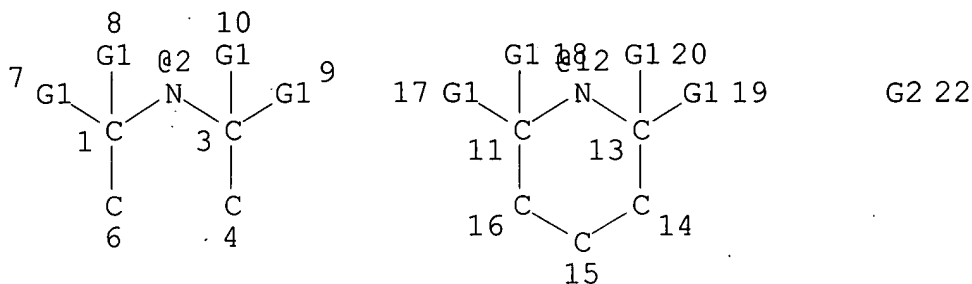
L63 14 SEA L61 AND (1840-2002/PY OR 1840-2002/PRY)

FILE 'REGISTRY' ENTERED AT 18:32:13 ON 12 JUL 2005

=> d l8 que stat

L2 SCR 966

L4 STR



VAR G1=ME/ET

VAR G2=12/2

NODE ATTRIBUTES:

CONNECT IS M2 C AT 4

CONNECT IS M2 C AT 6

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE

L6 SCR 2043

L8 25110 SEA FILE=REGISTRY SSS FUL L4 AND L2 NOT L6

100.0% PROCESSED 604869 ITERATIONS

25110 ANSWERS

SEARCH TIME: 00.00.03

=> file hca

FILE 'HCA' ENTERED AT 18:32:42 ON 12 JUL 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

=> d 162 1-36 cbib abs hitstr hitind

L62 ANSWER 1 OF 36 HCA COPYRIGHT 2005 ACS on STN

140:277695 Process for preparation of a polycarboxylic

**composition** comprising an electrochemical oxidation stage of a monosaccharide **composition**. Marsais, Francis; Feasson, Christian; Queguiner, Guy; Ibert, Mathias; Comini, Serge; Grossel, Jean Marc (Roquette Freres, Fr.). Fr. Demande FR 2844525 A1 20040319, 31 pp. (French). CODEN: FRXXBL. APPLICATION: FR

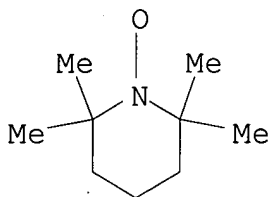
2002-11546 20020918.

AB The aim of present invention is a method of prepn. of polycarboxylic compn., by electrochem. oxidn. of monosaccharide carried out in absence of sodium **hypochlorite** and in presence of an oxide of amine and using an anode based on carbonaceous material. The aforementioned anode is selected in the group including carbon felts and the activated granulated carbon. The electrochem. oxidn. can advantageously be led to pH ranging between 10 and 14.

IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidinyloxy  
(prepn. of polycarboxylic compn. comprising electrochem. oxidn. stage of monosaccharide compn.)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C25B003-02

ICS C25B011-12; C07C059-245; C07C059-285; C11D003-20

CC 72-9 (Electrochemistry)

Section cross-reference(s): 23, 33

IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidinyloxy  
(prepn. of polycarboxylic compn. comprising electrochem. oxidn. stage of monosaccharide compn.)

L62 ANSWER 2 OF 36 HCA COPYRIGHT 2005 ACS on STN

140:183644 **Stabilized liquid compositions**

containing **active chlorine**, thickener

**mixtures, stabilizing liquid**

**compositions, and detergents.** Zanardi, Andrea;

Accardi, Italo (3V Sigma S.P.A, Italy). Eur. Pat. Appl. EP 1391501

A2 20040225, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW.

APPLICATION: EP 2003-14351 20030626. PRIORITY: IT 2002-MI1693 20020730.

AB **Liq. compns.** contg. alkali or alk.-earth **hypochlorites**, and possibly other **active Cl** releasers such as trichlorocyanuric acid, dichlorocyanuric acid and its alkali salts, with special ref. to those used for bleaching and sanitizing fabrics and surfaces.

IT **7681-52-9**, Sodium **hypochlorite** **14380-61-1D**, **Hypochlorite**, alkali or alk.-earth metal salt



(hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

RN 14380-61-1 HCA

CN Hypochlorite (8CI, 9CI) (CA INDEX NAME)

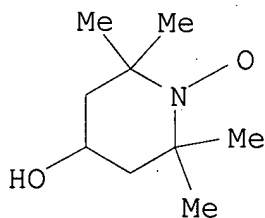
Cl-O<sup>-</sup>

IT 2226-96-2 2403-88-5

(**stabilizer**; hindered amine **stabilized**  
**liq. cleaning compns.** contg.  
**active chlorine** for fabrics and hard surfaces)

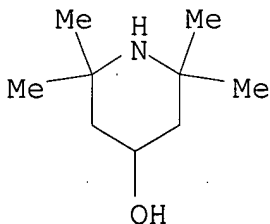
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

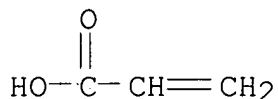


RN 2403-88-5 HCA

CN 4-Piperidinol, 2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



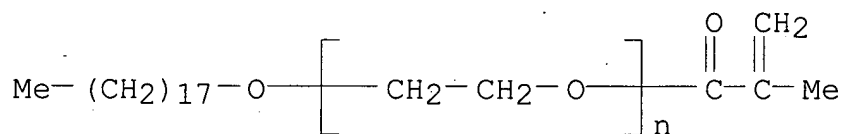
IT 79-10-7D, **Acrylic acid**, polymers  
 75760-37-1, Acusol 820 138789-85-2, Pemulen TR1  
 651353-92-3, Polygel DKP  
 (thickener; hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)  
 RN 79-10-7 HCA  
 CN 2-Propenoic acid (9CI) (CA INDEX NAME)



RN 75760-37-1 HCA  
 CN 2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate and  
 .alpha.-(2-methyl-1-oxo-2-propenyl)-.omega.-(octadecyloxy)poly(oxy-  
 1,2-ethanediyl) (9CI) (CA INDEX NAME)

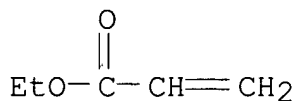
CM 1

CRN 52352-43-9  
 CMF (C2 H4 O)<sub>n</sub> C22 H42 O2  
 CCI PMS



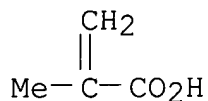
CM 2

CRN 140-88-5  
 CMF C5 H8 O2



CM 3

CRN 79-41-4  
 CMF C4 H6 O2



RN 138789-85-2 HCA  
 CN Pemulen TR 1 (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 651353-92-3 HCA  
 CN Polygel DKP (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IC ICM C11D007-32  
 ICS C11D003-395; C11D003-28  
 CC 46-6 (Surface Active Agents and Detergents)  
 ST thickened **stabilized** bleach **hypochlorite**;  
**disinfecting** detergent **hypochlorite** thickener  
**polyacrylic** acid crosslinked; **hypochlorite**  
**stabilizer** tetramethylhydroxypiperidine N oxide; hindered  
 amine **hypochlorite stabilizer**; tetramethyl  
 hydroxypiperidine **hypochlorite stabilizer**  
 IT Detergents  
 (bleaching; hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)  
 IT **Disinfectants**  
 (detergent; hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)  
 IT Detergents  
 (**disinfectant**; hindered amine **stabilized**  
**liq. cleaning compns.** contg.  
**active chlorine** for fabrics and hard surfaces)  
 IT **Detergents**  
 (**liq.**; hindered amine **stabilized liq**  
**. cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)  
 IT 87-90-1D, Trichlorocyanuric acid, optionally salt 2782-57-2D,  
 Dichlorocyanuric acid, optionally salt **7681-52-9**, Sodium  
**hypochlorite** 7790-28-5, Sodium periodate 13598-36-2,  
 Phosphonic acid **14380-61-1D**, **Hypochlorite**,  
 alkali or alk.-earth metal salt  
 (hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)  
 IT **2226-96-2 2403-88-5**  
 (**stabilizer**; hindered amine **stabilized**  
**liq. cleaning compns.** contg.  
**active chlorine** for fabrics and hard surfaces)

IT 79-10-7D, **Acrylic acid**, polymers  
 75760-37-1, Acusol 820 138789-85-2, Pemulen TR1  
 651353-92-3, Polygel DKP  
 (thickener; hindered amine **stabilized liq.**  
**cleaning compns.** contg. **active**  
**chlorine** for fabrics and hard surfaces)

L62 ANSWER 3 OF 36 HCA. COPYRIGHT 2005 ACS on STN

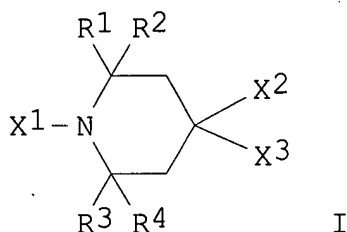
140:148120 Hindered amine **stabilized liquid**

**compositions** containing **active chlorine**.

Zanardi, Andrea; Accardi, Italo (Italy). U.S. Pat. Appl. Publ. US  
 2004023837 A1 20040205, 7 pp. (English). CODEN: USXXCO.

APPLICATION: US 2003-616775 20030710.. PRIORITY: IT 2002-MI16943  
 20020730.

GI )



AB **Liq. compns.** with improved **viscosity**  
**stability** and/or **active chlorine**  
 content, contains alkali or alk.-earth **hypochlorites**, and  
 possibly other **active chlorine** releasers such as  
 trichlorocyanuric acid, dichlorocyanuric acid and its alkali salts,  
 with special ref. to those used for bleaching and sanitizing fabrics  
 and surfaces. Method for **stabilizing** the  
**viscosity** and/or the **active chlorine**  
 content of **liq. compns.** contg. alkali or  
 alk.-earth **hypochlorites**, comprises the addn. to said  
 compns. 0.001% to 5% by wt. of compds. belonging to the class of  
 hindered amines having the general formula I, wherein R1, R2, R3 and  
 R4, which may be the same or different, represent Me or ethyl; X1  
 represents H, Me, Et, an oxygen atom, an -OH group or an OR5 group,  
 wherein R5 represents linear or branched alkyl C1-C4 or cyclohexyl;  
 X2 represents hydrogen and X3 represents the groups -OH or -NHR5,  
 wherein R5 has the meaning described above; or X2 and X3, taken  
 together, represent an oxygen atom.

IT 7681-52-9, Sodium **hypochlorite** 14380-61-1D  
 , **Hypochlorite**, alkali or alk.-earth metal salt  
 (hindered amine **stabilized liq.**

**compns. contg. active chlorine)**

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

RN 14380-61-1 HCA

CN Hypochlorite (8CI, 9CI) (CA INDEX NAME)

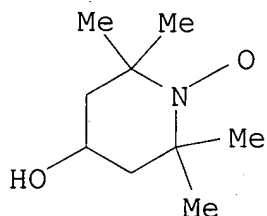
Cl-O<sup>-</sup>

IT 2226-96-2 2403-88-5

(**stabilizer**; hindered amine **stabilized**  
**liq. compns. contg. active**  
**chlorine)**

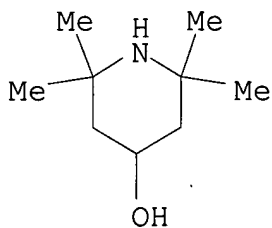
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2403-88-5 HCA

CN 4-Piperidinol, 2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



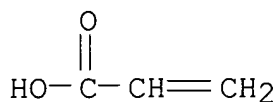
IT 79-10-7D, **Acrylic acid**, polymers

75760-37-1, Acusol 820 138789-85-2, Pemulen TR1

**651353-92-3**, Polygel DKP  
 (thickener; hindered amine **stabilized liq.**  
**comps.** contg. **active chlorine**)

RN 79-10-7 HCA

CN 2-Propenoic acid (9CI) (CA INDEX NAME)



RN 75760-37-1 HCA

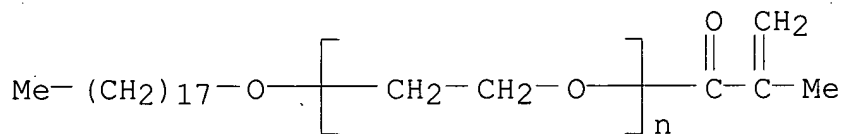
CN 2-Propenoic acid, 2-methyl-, polymer with ethyl 2-propenoate and  
 .alpha.-(2-methyl-1-oxo-2-propenyl)-.omega.-(octadecyloxy)poly(oxy-  
 1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 52352-43-9

CMF (C2 H4 O)<sub>n</sub> C22 H42 O2

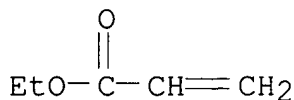
CCI PMS



CM 2

CRN 140-88-5

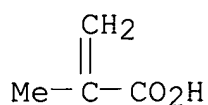
CMF C5 H8 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



RN 138789-85-2 HCA  
 CN Pemulen TR 1 (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 651353-92-3 HCA  
 CN Polygel DKP (9CI) (CA INDEX NAME)  
 \*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IC ICM C01B011-00  
 ICS A62D009-00; C01B007-00; C09K003-00; A62D003-00; C11D001-00  
 INCL 510499000; 252186360; 252186370  
 CC 46-6 (Surface Active Agents and Detergents)  
 ST thickened **stabilized** bleach **hypochlorite**;  
**disinfectant** detergent **hypochlorite** thickener  
**polyacrylic** acid crosslinked; **hypochlorite**  
**stabilizer** tetramethylhydroxypiperidine N oxide; hindered  
 amine **hypochlorite stabilizer**; Tetramethyl  
 hydroxypiperidine **hypochlorite stabilizer**  
 IT Detergents  
 (bleaching; hindered amine **stabilized liq.**  
**compns. contg. active chlorine**)  
 IT **Disinfectants**  
 (detergent; hindered amine **stabilized liq.**  
**compns. contg. active chlorine**)  
 IT Detergents  
 (**disinfectant**; hindered amine **stabilized**  
**liq. compns. contg. active**  
**chlorine**)  
 IT **Detergents**  
 (**liq.**; hindered amine **stabilized liq.**  
**compns. contg. active chlorine**)  
 IT 87-90-1D, Trichlorocyanuric acid, optionally salt 2782-57-2D,  
 Dichlorocyanuric acid, optionally salt **7681-52-9**, Sodium  
**hypochlorite** 7790-28-5, Sodium periodate 13598-36-2,  
 Phosphonic acid **14380-61-1D**, **Hypochlorite**,  
 alkali or alk.-earth metal salt  
 (hindered amine **stabilized liq.**  
**compns. contg. active chlorine**)  
 IT **2226-96-2 2403-88-5**  
 (**stabilizer**; hindered amine **stabilized**  
**liq. compns. contg. active**  
**chlorine**)  
 IT **79-10-7D**, **Acrylic** acid, polymers  
**75760-37-1**, Acusol 820 **138789-85-2**, Pemulen TR1

**651353-92-3**, Polygel DKP  
(thickener; hindered amine **stabilized liq.**  
**comps. contg. active chlorine**)

L62 ANSWER 4 OF 36 HCA COPYRIGHT 2005 ACS on STN

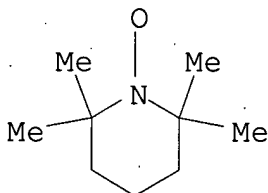
139:365169 Preparation of complexes comprising oxidized polysaccharides, chitosan, and bioactive components such as drugs, agrochemicals, etc.. Kaminaga, Junichi; Matsuo, Ryukichi; Kato, Yumiko (Toppan Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003321398 A2 20031111, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-123678 20020425.

AB Oxidized polysaccharides, wherein CO<sub>2</sub>H or its salt group is introduced at 6-position of the pyranose ring, and chitosan are added to an aq. soln. contg. .gtoreq.1 active components dissolved or dispersed therein to give the title complexes. The polyion complexes are free from risk of viral contamination and can be designed to show various release characteristics and phys. properties by controlling carboxyl and amino groups. L-Ascorbic acid was dissolved in an aq. soln. of chitosan with acetylation degree 50% (prepn. given) and the soln. was **mixed** with an **aq.** soln. of free amyLOURONIC acid (prepd. by oxidn. of corn starch with TEMPO, NaBr, and **NaClO** and treatment with HCl) to give complex gel. The complex was completely dissolved in an acidic soln. and a alk. soln.

IT **2564-83-2**, TEMPO  
(polysaccharide oxidn. using; prepn. of complexes comprising oxidized polysaccharides (uronic acids), chitosan, and bioactive components such as drugs and agrochems.)

RN 2564-83-2 HCA

CN 1-Piperidinyl-oxo, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM A61K047-36

ICS A01N053-04; A01N059-16; C08B015-02; C08B033-08; C08B037-08

CC 33-5 (Carbohydrates)

Section cross-reference(s): 5, 62, 63

IT **2564-83-2**, TEMPO

(polysaccharide oxidn. using; prepn. of complexes comprising oxidized polysaccharides (uronic acids), chitosan, and bioactive components such as drugs and agrochems.)



L62 ANSWER 5 OF 36 HCA COPYRIGHT 2005 ACS on STN

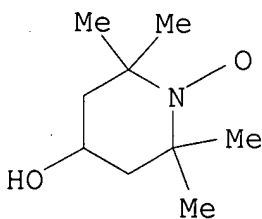
139:276804 Process for producing heterocyclic aldehyde. Shiomi, Yasuhiro; Uno, Osamu; Ohta, Akio; Sunakami, Takeshi (Koei Chemical Co., Ltd., Japan). PCT Int. Appl. WO 2003080575 A1 20031002, 48 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2003-JP3568 20030325. PRIORITY: JP 2002-86974 20020326.

AB The patent relates to a process in which a heterocyclic alc. is oxidized to produce a heterocyclic aldehyde with high selectivity in high yield. The process comprises reacting a heterocyclic compd. having per mol. at least one hydroxymethyl group bonded to a carbon atom of the heterocycle with a hypohalogenous acid salt in the presence of a base to oxidize the hydroxymethyl group to thereby produce the corresponding heterocyclic aldehyde, wherein the reaction is conducted in the presence of a 2,2,6,6-tetramethylpiperidin-1-oxyl deriv. having per mol. two or more 2,2,6,6-tetramethylpiperidin-1-oxyl-4-yl groups. Thus, 3-pyridine-methanol was oxidized by sodium **hypochlorite** in presence of an oligomer deriv. obtained from Chimassorb 944LD with hydrogen peroxide and generated 3-pyridinecarbaldehyde (90.1%) and nicotinic acid (3.4%).

IT **2226-96-2DP**, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-N-oxy, reaction product with poly(2-isocyanatoethyl **methacrylate**) (in prepn. of heterocyclic aldehyde)

RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite** (in prepn. of heterocyclic aldehyde)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

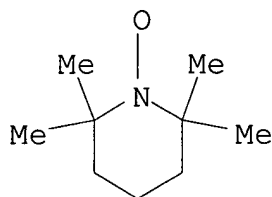
● Na

- IC ICM C07D213-48  
ICS C07D333-16; C07D213-30
- CC 27-1 (Heterocyclic Compounds (One Hetero Atom))
- ST heterocyclic aldehyde prepn sodium **hypochlorite**  
piperidinyol oligomer
- IT **2226-96-2DP**, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-N-oxy,  
reaction product with poly(2-isocyanatoethyl **methacrylate**)  
71878-19-8DP, Chimassorb 944LD, oligomer prepd. in presence of  
hydrogen peroxide 88007-27-6DP, 2-Isocyanatoethyl  
**methacrylate** homopolymer, reaction product with  
4-hydroxy-2,2,6,6-tetramethylpiperidine-1-oxy 360785-62-2DP,  
Chimassorb 2020FDL, oligomer prepd. in presence of hydrogen peroxide  
(in prepn. of heterocyclic aldehyde)
- IT **7681-52-9**, Sodium **hypochlorite** 7722-84-1,  
Hydrogen peroxide, reactions  
(in prepn. of heterocyclic aldehyde)
- L62 ANSWER 6 OF 36 HCA COPYRIGHT 2005 ACS on STN  
139:135145 Manufacture of water-soluble or swellable oxidized chitosan.  
Kato, Yumiko; Matsuo, Ryukichi; Kaminaga, Junichi (Toppan Printing  
Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003212903 A2  
20030730, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
2002-16690 20020125.
- AB The oxidized chitosan is manufd. by dissolving or swelling chitosan  
in aq. acid solns., neutralization, and regioselective oxidn. of the  
6-position C of pyranose rings in N-acetylglucosamine and  
glucosamine units into carboxyl groups or their salts. Thus, 2%  
acid soln. of chitosan (degree of deacetylation 75%) was neutralized  
with NaOH, washed with **water**, **mixed** with  
2,2,6,6-tetramethyl-1-piperidine-N-oxyl and NaBr, and oxidized with  
**NaClO** while adjusting pH of the soln. to 10.75 by addn. of  
NaOH to give a water-sol. oxidized chitosan.
- IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of water-sol. or swellable oxidized  
chitosan)
- RN 7681-52-9 HCA
- CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT **2564-83-2**, 2,2,6,6-Tetramethyl-piperidine-N-oxyl  
 (oxidn. catalyst; manuf. of water-sol. or swellable oxidized  
 chitosan)  
 RN 2564-83-2 HCA  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C08B037-08  
 ICS C07B061-00  
 CC 44-5 (Industrial Carbohydrates)  
 ST chitosan oxidn catalyst methylpiperidine oxyl; sodium  
**hypochlorite** oxidn agent bromide chitosan oxidn  
 IT **7681-52-9**, Sodium **hypochlorite**  
 (oxidn. agent; manuf. of water-sol. or swellable oxidized  
 chitosan)  
 IT **7681-52-9**, Sodium **hypochlorite**  
 (oxidn. agent; manuf. of water-sol. or swellable oxidized  
 chitosan)

L62 ANSWER 7 OF 36 HCA COPYRIGHT 2005 ACS on STN  
 139:135144 Manufacture of water-soluble or swellable oxidized chitosan.  
 Kato, Yumiko; Matsuo, Ryukichi; Kaminaga, Junichi (Toppan Printing  
 Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003212904 A2  
 20030730, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
 2002-16682 20020125.  
 AB The oxidized chitosan is manufd. by deacetylation with acid or  
 alkali hydrolysis of oxidized chitin prepd. by regioselective oxidn.  
 of primary OH groups on C-6 position of pyranose rings in  
 N-acetylglucosamine units into carboxyl groups or their salts.  
 Thus, NaOH soln. of chitin was neutralized with HCl, washed with  
**water, mixed** with 2,2,6,6-tetramethyl-1-piperidine-  
 N-oxyl and NaBr, and oxidized with **NaClO** at  
 .1toreq.5.degree. while adjusting pH of the soln. to 10.75 by addn.

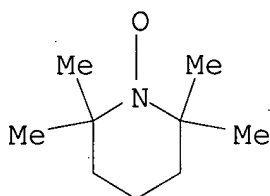
of NaOH to give an oxidized chitin, which was deacetylated with NaOH and neutralized with HCl to give a water-sol. oxidized chitosan with degree of deacetylation 30%.

IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of water-sol. or swellable oxidized chitosan)  
RN 7681-52-9 HCA  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidine-N-oxyl  
(oxidn. catalyst; manuf. of water-sol. or swellable oxidized chitosan)  
RN 2564-83-2 HCA  
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C08B037-08  
CC 44-5 (Industrial Carbohydrates)  
ST chitin oxidn catalyst methylpiperidine oxyl deacetylation chitosan;  
sodium **hypochlorite** oxidn agent bromide chitosan oxidn

IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of water-sol. or swellable oxidized chitosan)  
IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of water-sol. or swellable oxidized chitosan)

L62 ANSWER 8 OF 36 HCA COPYRIGHT 2005 ACS on STN  
139:70657 Production of polysaccharide aldehydes by mild oxidation in the presence of nitroxyl radicals. Cimecioglu, A. Levent; Thomaidis, John S. (National Starch and Chemical Investment Holding Corporation, USA). U.S. US 6586588 B1 20030701, 8 pp., Cont.-in-part of U. S. Ser. No. 375,931. (English). CODEN: USXXAM. APPLICATION: US 2000-636069 20000810. PRIORITY: US 1999-375931

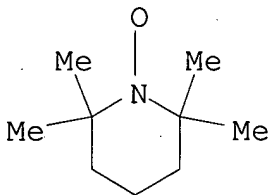
19990817.

AB A method for producing polysaccharide aldehyde derivs. having max. effective aldehyde content comprises oxidizing polysaccharide in an aq. soln. with an oxidant having an equiv. oxidizing power of up to 14.18 g of **active chlorine** per mol of polysaccharide anhydro sugar unit (ASU) and an effective mediating amt. of nitroxyl radical, the reaction being carried out at temp. .ltoreq. 15.degree. and pH from 8.0 to 10.5, the resulting product having up to 15% mol of C-6 aldehyde groups per mol of polysaccharide ASU and aldehyde to carboxylic acid ratios .gtoreq. 0.5 based on moles of polysaccharide ASU of each functionality. The polysaccharide aldehyde derivs. have max. effective aldehyde and minimal carboxylic acid levels making them esp. useful as wet, temporary wet and dry strength additives in papermaking. Thus, nitroxyl radical TEMPO (0.44) and sodium bromide (2.9 g) were added to an aq. starch slurry (45.5 g dry cationic maize starch in 100 mL of water), and the system was cooled to < 5.degree.. The pH of the mixt. was adjusted to 9.5 with sodium hydroxide (4% soln.), sodium **hypochlorite** (24.8 g) with pH adjusted to 9.5 was then introduced dropwise into the reaction mixt. at a rate so as to maintain the temp. of the reaction mixt. < 15.degree.. The aldehyde content of the oxidized starch was 2.3% mol based on moles of starch ASU, and the carboxylic acid content was 1.1% mol percent based on moles of starch ASU.

IT **2564-83-2**, TEMPO **14691-89-5**, 4-Acetamido-TEMPO  
(prodn. of polysaccharide aldehydes by mild oxidn. in presence of nitroxyl radicals)

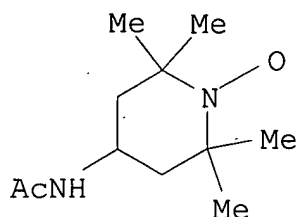
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite**  
(prodn. of polysaccharide aldehydes by mild oxidn. in presence of  
nitroxyl radicals)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08B031-00

ICS C08B035-00; C08B031-18; C08B037-00; C08B001-00

INCL 536104000; 536102000; 536105000; 536121000; 536123000; 536123100;  
536124000; 536001110; 536056000; 536114000

CC 44-6 (Industrial Carbohydrates)

Section cross-reference(s): 43

IT **2564-83-2**, TEMPO **14691-89-5**, 4-Acetamido-TEMPO

(prodn. of polysaccharide aldehydes by mild oxidn. in presence of  
nitroxyl radicals)

IT **7681-52-9**, Sodium **hypochlorite** 13824-96-9,

Sodium hypobromite

(prodn. of polysaccharide aldehydes by mild oxidn. in presence of  
nitroxyl radicals)

L62 ANSWER 9 OF 36 HCA COPYRIGHT 2005 ACS on STN

139:41918 Polysaccharide-coated or impregnated biocompatible porous  
materials. Kaminaga, Junichi; Matsuo, Ryukichi; Kato, Yumiko  
(Toppan Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP  
2003180812 A2 20030702, 6 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 2001-382872 20011217.

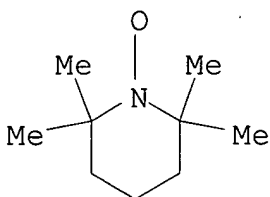
AB Polysaccharides are oxidized in water to give a water-sol. or  
water-dispersible material. Cellulose fibers or regenerated  
cellulose fibers in the form of a fabric, gauze, sheet, and paper,  
are impregnated with the above oxidized polysaccharide solns. An  
aq. soln. (200 mL) contg. TEMPO 0.192 g and NaBr 2.54 g was mixed

with 10 g rayon pieces dispersed in 200 mL water. To the **mixt.**, an **aq.** soln. of Na **hypochlorite** was added for oxidn. to give an oxidized cellulose. A gauze was impregnated with an **aq.** soln. of the above oxidized cellulose.

IT **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy  
**7681-52-9**, Sodium **hypochlorite**  
 (oxidized polysaccharide-coated or impregnated fibers for medical use)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM A61L015-16

ICS A61L031-00; C08B015-02; C08B031-18; C08B037-08

CC 63-8 (Pharmaceuticals)

IT **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy 7647-15-6,  
 Sodium bromide, miscellaneous **7681-52-9**, Sodium  
**hypochlorite**

(oxidized polysaccharide-coated or impregnated fibers for medical use)

L62 ANSWER 10 OF 36 HCA COPYRIGHT 2005 ACS on STN

137:201293 Method of synthesizing camptothecin-relating compounds.

Ogawa, Takanori; Nishiyama, Hiroyuki; Uchida, Miyuki; Sawada, Seigo  
 (Kabushiki Kaisha Yakult Honsha, Japan). PCT Int. Appl. WO

2002066416 A1 **20020829**, 89 pp. DESIGNATED STATES: W: AE,

AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,

CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,

ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,

MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD,

SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU,

ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP1538 20020221. PRIORITY: JP 2001-45430 20010221; JP 2001-309322 20011005.

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB 2'-Amino-5'-hydroxypropiophenone (I) corresponding to the AB cycle moiety of the camptothecin (CPT) skeleton and a tricyclic ketone, namely (S)-4-ethyl-7,8-dihydro-4-hydroxy-1H-pyrano[3,4-f]indolizine-3,6,10(4H)-trione (II) corresponding to the CDE cycle moiety thereof can be efficiently produced and thus CPT and its derivs. can be stably supplied by a practically usable total synthesis to more efficiently provide camptothecin (CPT), which is a starting compd. for irinotecan hydrochloride, namely 7-ethyl-10-[4-(1-piperidino)-1-piperidino]carbonyloxycamptothecin hydrochloride trihydrate, and various camptothecin derivs. Thus, benzylation of 2-nitro-5-hydroxybenzaldehyde by benzyl chloride in the presence of K<sub>2</sub>CO<sub>3</sub> in DMF at 60.degree. for 20 h gave 94% 5-benzyloxy-2-nitrobenzaldehyde which went addn. reaction with vinylmagnesium bromide in THF at 3-10.degree. for 1 h to give 84.0% 1-(5-benzyloxy-2-nitrophenyl)-2-propen-1-ol (VIII). Oxidn. of VIII with MnO<sub>2</sub> in CHCl<sub>3</sub> at 25.degree. for 15 h gave 91% 1-(5-benzyloxy-2-nitrophenyl)-1-oxo-2-propene which was hydrogenated over 10% Pd-C in EtOAc under H atm. for 13 h to give 81% I. K<sub>2</sub>OsO<sub>4</sub>·2H<sub>2</sub>O and (DHQD)2PYR were added to an aq. soln. of K<sub>3</sub>Fe(CN)<sub>6</sub>, K<sub>2</sub>CO<sub>3</sub>, and MeSO<sub>2</sub>NH<sub>2</sub> and stirred at .apprx.5.degree. for 1 h, followed by adding 4-ethyl-8-methoxy-6-(trimethylsilyl)-1H-pyrano[3,4-c]pyridine, and the resulting mixt. was stirred at 5.degree. for 20 h, treated with sodium sulfite, and stirred at 5.degree. for 30 min for asym. dihydroxylation to give a diol (III) (95%) which was oxidized by iodine and K<sub>2</sub>CO<sub>3</sub> in aq. methanol at 40.degree. for 48 h to give a lactone (IV; R = TMS) (88%). Iodination of IV (R = TMS) by iodine and CF<sub>3</sub>CO<sub>2</sub>Ag in CH<sub>2</sub>Cl<sub>2</sub> at room temp. for 16.5 h gave IV (R = iodo) (97%) which underwent carbonylation by CO in the presence of Pd(OAc)<sub>2</sub> and K<sub>2</sub>CO<sub>3</sub> in 1-propanol at 60.degree. for 18 to give an ester IV (R = n-PrO<sub>2</sub>C) (70%). Demethylation of IV (R = n-PrO<sub>2</sub>C) by treatment with Me<sub>3</sub>SiCl and NaI in MeCN at room temp. for 3 h gave a keto lactone, namely 4-ethyl-3,4,7,8-tetrahydro-4-hydroxy-3,8-dioxo-1H-pyrano[3,4-c]pyridine-6-carboxylic acid Pr ester (V) (95%) which was cyclocondensed with tert-Bu **acrylate** in the presence of K<sub>2</sub>CO<sub>3</sub> in DMSO at 50.degree. for 20 min to give a tricyclic compd.



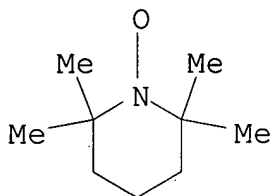
(VI) (77%). VI was heated with a mixt. of CF<sub>3</sub>CO<sub>2</sub>H and PhMe at 110.degree. for 100 min to give 77% II which was cyclocondensed with I in a 1:1 mixt. of AcOH and toluene in the presence of p-toluenesulfonic acid monohydrate at 100.degree. for 18 h to give SN-38 (VII; R<sub>1</sub> = H). VII (R<sub>1</sub> = H) was converted into irinotecan hydrochloride, VII.HCl (R<sub>1</sub> = Q).

IT **2564-83-2**, TEMPO **7681-52-9**, Sodium **hypochlorite**

(oxidn. by; prepn. of camptothecin-relating compds. such as irinotecan hydrochloride and intermediates thereof)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C221-00

ICS C07C225-22; C07C205-37; C07C205-45; C07D491-147

CC 28-2 (Heterocyclic Compounds (More Than One Hetero Atom))  
Section cross-reference(s): 1

ST camptothecin prepn; irinotecan hydrochloride prepn;  
aminohydroxypropiophenone prepn intermediate irinotecan; asym  
dihydroxylation ethylmethoxytrimethylsilylpyranopyridine;  
ethyl dihydrohydroxypyranoin dolizinetri one cyclocondensation  
aminohydroxypropiophenone; ethyl tetrahydrohydroxydioxopyranopyridine  
carboxylic acid propyl ester cyclocondensation **acrylate**

IT Cyclocondensation reaction

(prepn. of camptothecin-relating compds. via cyclocondensation of  
4-ethyl-3,4,7,8-tetrahydro-4-hydroxy-3,8-dioxo-1H-pyrano[3,4-  
c]pyridine-6-carboxylic acid Pr ester with tert-Bu  
**acrylate**)

IT 1663-39-4, tert-Butyl **acrylate**

(cyclocondensation with Pr 4-ethyl-3,4,7,8-tetrahydro-4-hydroxy-

3,8-dioxo-1H-pyrano[3,4-c]pyridine-6-carboxylate; prepn. of camptothecin-relating compds. such as irinotecan hydrochloride and intermediates thereof)

IT **2564-83-2**, TEMPO **7681-52-9**, Sodium

**hypochlorite**

(oxidn. by; prepn. of camptothecin-relating compds. such as irinotecan hydrochloride and intermediates thereof)

L62 ANSWER 11 OF 36 HCA COPYRIGHT 2005 ACS on STN

137:156361 Biodegradable hydrogels with high physiological saline absorption and manufacture of oxidized polysaccharide derivatives therefor. Okawa, Hajime; Ueno, Satoshi (Mitsubishi Gas Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002226502 A2 **20020814**, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-22397 20010130.

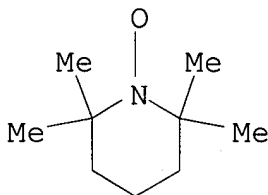
AB In the process, polysaccharides are pre-treated to increase water soly. and oxidized with hypochlorous acid (salts) in the presence of nitroxyl compds. The pre-treated polysaccharides may be gelatinized .alpha.-polysaccharides or mercerized .beta.-polysaccharides. Hydrogels with Mw .gtoreq.200,000 from the oxidized polysaccharide derivs., useful for diapers, sanitary goods, etc., as biodegradable substitutes for **acrylic** polymers, are also claimed. Thus, corn starch was gelatinized and oxidized with Tempo and **NaClO** to give 6-carboxystarch with Mw 900,000 showing exchanged water absorption 140 g/g and saline absorption 45 g/g.

IT **2564-83-2**, TEMPO

(manuf. of oxidized polysaccharide derivs. showing high physiol. saline absorption)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite**

(manuf. of oxidized polysaccharide derivs. showing high physiol. saline absorption)

RN 7681-52-9 HCA

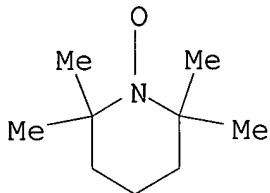
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

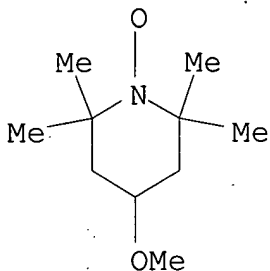
● Na

- IC ICM C08B031-18  
CC 44-6 (Industrial Carbohydrates)  
Section cross-reference(s): 63  
ST physiol saline absorbing oxidized polysaccharide diaper; gelatinized  
carboxystarch water absorption sanitary good; tempo  
**hypochlorite** oxidized starch saline absorption  
IT **2564-83-2**, TEMPO  
(manuf. of oxidized polysaccharide derivs. showing high physiol.  
saline absorption)  
IT **7681-52-9**, Sodium **hypochlorite** 7790-92-3D,  
Hypochlorous acid, derivs.  
(manuf. of oxidized polysaccharide derivs. showing high physiol.  
saline absorption)
- L62 ANSWER 12 OF 36 HCA COPYRIGHT 2005 ACS on STN  
137:93755 Preparation of lansoprazole via coupling of  
2-mercaptobenzimidazole with 2-hydroxymethyl-3-methyl-4-(2,2,2-  
trifluoroethoxy)pyridine followed by radical oxidation.. Moon,  
Young-Ho; Lee, Kyung-Ik; Lee, Gwan-Sun (Hanmi Pharm. Co., Ltd., S.  
Korea). U.S. US 6423846 B1 **20020723**, 6 pp. (English).  
CODEN: USXXAM. APPLICATION: US 2001-967581 20010928.
- AB Lansoprazole (I) was prepd. by coupling of 2-mercaptobenzimidazole  
(II) with 2-hydroxymethyl-3-methyl-4-(2,2,2-trifluoroethoxy)pyridine  
(III) in the presence of a phosphine and a dialkyl azodicarboxylate  
followed by treatment of the sulfide intermediate with oxidant in a  
**mixt. of water** and an org. solvent in the presence  
of an org. free radical and a phase transfer catalyst. Thus, II,  
III, and Ph3P in THF were treated dropwise with di-Et  
azodicarboxylate (DEAD) in THF at room temp., and stirred for 1 h to  
give 95% 2-[3-methyl-4-(2,2,2-trifluoroethoxy)-2-pyridyl]methylthio-  
1H-benzimidazole. The latter with tetramethyl-1-piperidinyloxy  
(TEMPO) in THF, was combined with tetrabutylammonium chloride in  
water. The resulting mixt. was cooled to 0.degree. and aq.  
**NaOCl** was added over 2 h at 0.degree. followed by stirring  
for 10 min at 0.degree. and then for 10 min at 20.degree. to give  
90% I.
- IT **2564-83-2**, Tempo **95407-69-5**, 4-Methoxytempo  
(prepn. of lansoprazole via coupling of mercaptobenzimidazole  
with hydroxymethylmethyltrifluoroethoxypyridine followed by  
radical oxidn.)

RN 2564-83-2 HCA  
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 95407-69-5 HCA  
CN 1-Piperidinyloxy, 4-methoxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9, Sodium hypochlorite**  
(prepn. of lansoprazole via coupling of mercaptobenzimidazole  
with hydroxymethylmethyltrifluoroethoxypyridine followed by  
radical oxidn.)  
RN 7681-52-9 HCA  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07D401-12  
INCL 546273700  
CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))  
ST lansoprazole prepn; mercaptobenzimidazole  
hydroxymethylmethyltrifluoroethoxypyridine coupling; benzimidazole  
methyl trifluoroethoxy pyridinylmethylsulfinyl prepn;  
pyridinylmethylthiobenzimidazole oxidn **hypochlorite** tempo  
IT 311-28-4, Tetrabutylammonium iodide 429-41-4, Tetrabutylammonium  
fluoride 1112-67-0, Tetrabutylammonium chloride 1643-19-2,

Tetrabutylammonium bromide **2564-83-2**, Tempo

**95407-69-5**, 4-Methoxytempo

(prepn. of lansoprazole via coupling of mercaptobenzimidazole with hydroxymethylmethyltrifluoroethoxypyridine followed by radical oxidn.)

IT 554-70-1, Triethyl phosphine 594-09-2, Trimethyl phosphine  
603-35-0, Triphenylphosphine, reactions 998-40-3, Tributyl  
phosphine 1972-28-7, Diethyl azodicarboxylate 2446-83-5,  
Diisopropyl azodicarboxylate **7681-52-9**, Sodium

**hypochlorite**

(prepn. of lansoprazole via coupling of mercaptobenzimidazole with hydroxymethylmethyltrifluoroethoxypyridine followed by radical oxidn.)

L62 ANSWER 13 OF 36 HCA COPYRIGHT 2005 ACS on STN

136:21147 Method for manufacture of hyaluronic acid analogues and derivative biopolymers for use as surgical dressings and dermatology films. Muzzarelli, Riccardo (Italy). Ital. IT 1297801 B1 **19991220**, 15 pp. (Italian). CODEN: ITXXBY. APPLICATION: IT 1997-AN62 19971031.

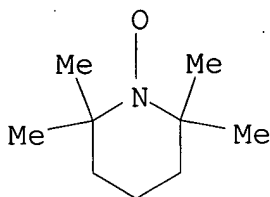
AB The hyaluronic acid analogs are based in (1-4)-2-amino-2-deoxy-.beta.-D-glucopyran-.beta.-D-gluco-uronan obtained by regioselective oxidn. of chitin or acetylated chitosan and are sol. in water at all pH. The selective oxidn. of chitin is carried out using **hypochlorites** and NaBr and TEMPO as catalysts; the chitin is pre-treated to enhance surface area, and the product is purified by pptn., coagulation, rinsing with surfactants, sonication, steam explosion, and dispersion. Deriv. biopolymers include esters, esp. acetates; complexes with transition metals; and complexes with polyelectrolytes, proteins, and polysaccharides; the products can be obtained as microspheres, films, laminates, or vesicles. Powd. chitin was treated with **NaOCl** in presence of TEMPO and NaBr for 20 min., adjusting the pH to 10.5; the suspension was stirred for 2 h, subjected to dialysis, and optionally dissolved in EtOH to obtain oxidized chitin.

IT **2564-83-2**, TEMPO

(oxidn. catalyst; method for manuf. of hyaluronic acid analogs and deriv. biopolymers for use as surgical dressings and dermatol. films)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

(oxidn. reagent; method for manuf. of hyaluronic acid analogs and deriv. biopolymers for use as surgical dressings and dermatol. films)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

$$\text{Cl}-\text{OH}$$

● Na

IC ICM C08B

CC 44-5 (Industrial Carbohydrates)

Section cross-reference(s): 63, 64

ST chitin regioselective oxidn hyaluronic acid analog manuf; sodium **hypochlorite** oxidn chitin biopolymer film vesicle

IT 1398-61-4DP, Chitin, oxidn. products, salts and **chelates**

9012-76-4DP, Chitosan, acetylated, oxidn. products, salts and  
**chelates**

(method for manuf. of hyaluronic acid analogs and deriv.

biopolymers for use as surgical dressings and dermatol. films)

IT 2564-83-2, TEMPO 7647-15-6, Sodium bromide (NaBr), uses

(oxidn. catalyst; method for manuf. of hyaluronic acid analogs and deriv. biopolymers for use as surgical dressings and dermatol. films)

IT 2564-83-2, TEMPO 7647-15-6, Sodium bromide (NaBr), uses

(oxidn. catalyst; method for manuf. of hyaluronic acid analogs and deriv. biopolymers for use as surgical dressings and dermatol. films)

L62 ANSWER 14 OF 36 HCA COPYRIGHT 2005 ACS on STN

135:346080 Use of carbohydrates in tanning technology. Lanzetta, R.; Mancino, A.; Naviglio, B.; Parrilli, M.; Tomaselli, M.; Tortora, G. (Dip. Chimica Organica Biochimica, Universita di Napoli "Federico II", Naples, Italy). *Cuoio, Pelli, Materie Concianti*, 76(6), 325-334 (Italian) **2000**. CODEN: CPMAAJ. ISSN: 0011-3034.

Publisher: Stazione Sperimentale per l'Industria delle Pelli e delle Materie Concianti.

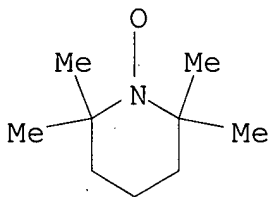
AB Several natural carbohydrates, e.g., glucose, maltose, sucrose, carrageenan, chitosan, gum arabic, pectin, and starch, were evaluated as partial substitutes of synthetic and vegetable tannins and in chrome tannage operations. Tests were carried out also of some carbohydrates chem. modified by two types of acid hydrolysis and by two types of oxidn. to introduce more reactive groups, i.e., meta-periodate producing non-identified groups, and oxidn. using NaHClO and a salt of TEMPO, that leads to formation of carboxyl groups. The natural and modified carbohydrates were used after pre-tanning with glutaraldehyde and syntan, followed by re-tanning with tara and chrome, resp. The leather obtained has suitable characteristics, e.g., good mech. strength, min. shrinkage, good feel, chem. stability, low or no reagent residue content, etc. Chitosan, carrageenan, and pectin, were also evaluated as **sequestering** agents for chrome in spent chrome tanning liquors, with chitosan providing best results. The chitosan-chrome complex can be treated to recover chromium and regenerate chitosan for use back into the processes.

IT **2564-83-2D**, TEMPO, salts **7681-52-9**, Sodium hypochlorite

(oxidizing agent; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 45-2 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 44

- ST carbohydrate tanning agent alternative leather quality; oxidn carbohydrate tanning efficiency replacement vegetable tannin; chrome tanning wastewater chitosan **sequestering** agent recovery; recycling chrome chitosan **sequestering** agent tanning process
- IT Hydrolysis  
(acid; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT Tanning (curing)  
(chrome; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT Recycling  
(chromium; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT Leather  
Oxidation  
**Sequestering** agents  
Tanning materials (curing)  
(evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT 50-99-7, Glucose, uses 57-50-1, Sucrose, uses 69-79-4, Maltose 9000-01-5, Gum arabic 9000-01-5D, Gum arabic, oxidized 9000-07-1, Carrageenan 9000-69-5, Pectin 9005-25-8, Starch, uses 9012-76-4D, Chitosan, oxidized  
(evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT 7440-47-3, Chromium, processes  
(evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT **2564-83-2D**, TEMPO, salts **7681-52-9**, Sodium hypochlorite  
(oxidizing agent; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)
- IT **2564-83-2D**, TEMPO, salts **7681-52-9**, Sodium hypochlorite  
(oxidizing agent; evaluation of carbohydrates as tanning agent alternative and use of chitosan as **sequestering** agent in chrome recovery and recycling)



Takuya; Nohata, Yasuhiro; Kimura, Etsuko (Hakuto Co., Ltd., Japan).  
Jpn. Kokai Tokkyo Koho JP 2001247898 A2 **20010914**, 6 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-57178 20000302.

AB Title compns. comprise compds. producing hypochlorous acid and/or hypobromous acid and cyclic secondary amines to clean mold effectively.

IT **7681-52-9**, Sodium **hypochlorite 7778-54-3**  
, Calcium **hypochlorite 7778-66-7**, Potassium  
**hypochlorite**

(hypochlorous acid and/or hypobromous acid producing compd.; mold  
**cleaning agent compns.**)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

RN 7778-54-3 HCA

CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● 1/2 Ca

RN 7778-66-7 HCA

CN Hypochlorous acid, potassium salt (8CI, 9CI) (CA INDEX NAME)

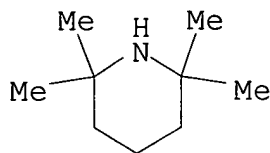
Cl-OH

● K

IT **768-66-1**, 2,2,6,6-Tetramethylpiperidine **826-36-8**,  
2,2,6,6-Tetramethyl-4-piperidone **2403-88-5**,  
4-Hydroxy-2,2,6,6-tetramethylpiperidine  
(mold **cleaning agent compns.**)

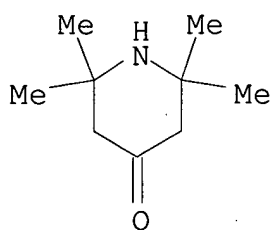
RN 768-66-1 HCA

CN Piperidine, 2,2,6,6-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



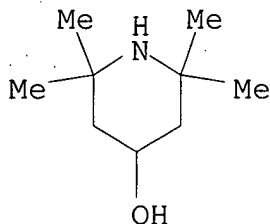
RN 826-36-8 HCA

CN 4-Piperidinone, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2403-88-5 HCA

CN 4-Piperidinol, 2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C11D007-60

ICS C11D007-04; C11D007-10; C11D007-32

CC 46-6 (Surface Active Agents and Detergents)

IT Detergents

Mold (fungus)

(mold **cleaning** agent **compns.**)

IT Amines, uses

(secondary, cyclic; mold **cleaning** agent **compns**

.)

IT 77-48-5, 1,3-Dibromo-5,5-dimethylhydantoin 87-90-1,

Trichloroisocyanuric acid 118-52-5, 1,3-Dichloro-5,5-

dimethylhydantoin 2782-57-2, Dichloroisocyanuric acid

**7681-52-9**, Sodium **hypochlorite 7778-54-3**, Calcium **hypochlorite 7778-66-7**, Potassium**hypochlorite 7782-50-5**, Chlorine, reactions 10049-04-4,

Chlorine dioxide 16079-88-2, 1-Bromo-3-chloro-5,5-

dimethylhydantoin

(hypochlorous acid and/or hypobromous acid producing compd.; mold  
**cleaning agent compns.**)

IT 7790-92-3P, Hypochlorous acid 13517-11-8P, Hypobromous acid  
(mold **cleaning agent compns.**)

IT **768-66-1**, 2,2,6,6-Tetramethylpiperidine **826-36-8**,  
2,2,6,6-Tetramethyl-4-piperidone **2403-88-5**,  
4-Hydroxy-2,2,6,6-tetramethylpiperidine 4567-22-0,  
2,2,5,5-Tetramethylpyrrolidine 38515-26-3, 2,2,6,6-  
Tetramethylpiperazine  
(mold **cleaning agent compns.**)

L62 ANSWER 16 OF 36 HCA COPYRIGHT 2005 ACS on STN

135:154305 Method for preparing mono-, di- and tricarboxy cyclodextrins  
by regioselective oxidation in position 6 of native .alpha.- or  
.beta.- or .gamma.-cyclodextrins. Vignon, Michel; Fraschini,  
Carole; Duval, Raphael (Chiralsep, Fr.). PCT Int. Appl. WO  
2001055222 A1 **20010802**, 30 pp. DESIGNATED STATES: W: AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU,  
CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY,  
DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT,  
SE, SN, TD, TG, TR. (French). CODEN: PIXXD2. APPLICATION: WO  
2001-FR302 20010131. PRIORITY: FR 2000-1225 20000131.

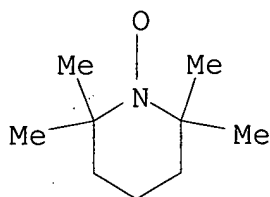
AB The invention concerns a method for prepg. mono-6-deoxy-6-carboxy  
and di-[6-deoxy-6-carboxy] and tri-[6-deoxy-6-carboxy]-cyclomalto-  
hexaose or -heptaose or -octahose, which are useful for  
encapsulation of cosmetic and pharmaceutical products, etc. Said  
method consists in regioselective oxidn. of one or several primary  
hydroxyls in position 6 of the glucopyranose units of an .alpha.- or  
.beta.- or .gamma.-cyclodextrin, in aq. soln., with controlled basic  
pH, at a temp. less than 5.degree., in the presence of a TEMPO  
radical, of sodium bromide and sodium **hypochlorite**.

IT **2564-83-2**

(method for prepg. mono-, di- and tricarboxy cyclodextrins by  
regioselective oxidn. in position 6 of native .alpha.- or .beta.-  
or .gamma.-cyclodextrins and uses)

RN 2564-83-2 HCA

CN 1-Piperidinylloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
(method for prep. mono-, di- and tricarboxy cyclodextrins by regioselective oxidn. in position 6 of native .alpha.- or .beta.- or .gamma.-cyclodextrins and uses)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

$$\text{Cl}-\text{OH}$$

● Na

IC ICM C08B037-16

CC 44-6 (Industrial Carbohydrates)

Section cross-reference(s): 62, 63

ST TEMPO radical regioselective oxidn cyclodextrin carboxylic deriv  
manuf; sodium bromide regioselective oxidn cyclodextrin carboxylic  
deriv manuf; **hypochlorite** oxidn regioselective  
cyclodextrin carboxylic deriv manuf; deoxy carboxy cyclodextrin  
manuf regioselective oxidn; encapsulation drug oxidized cyclodextrin  
manuf; cosmetic encapsulation oxidized cyclodextrin manuf

IT **Chelating** agents

Encapsulant's

## Perfumes

(method for prepg. mono-, di- and tricarboxy cyclodextrins by regioselective oxidn. in position 6 of native .alpha.- or .beta.- or .gamma.-cyclodextrins and uses)

IT 2564-83-2

(method for prepg. mono-, di- and tricarboxy cyclodextrins by regioselective oxidn. in position 6 of native .alpha.- or .beta.- or .gamma.-cyclodextrins and uses)

IT 7681-52-9, Sodium hypochlorite

(method for prepg. mono-, di- and tricarboxy cyclodextrins by regioselective oxidn. in position 6 of native .alpha.- or .beta.- or .gamma.-cyclodextrins and uses)

IT 7681-52-9, Sodium hypochlorite

(method for prepq. mono-, di- and tricarboxy cyclodextrins by

regioselective oxidn. in position 6 of native .alpha.- or .beta.- or .gamma.-cyclodextrins and uses)

L62 ANSWER 17 OF 36 HCA COPYRIGHT 2005 ACS on STN

134:368508 Selective oxidation of primary alcohol functions into carbaldehyde groups in monosaccharides and polysaccharides under acidic conditions. Gunnars, Susanna (SCA Hygiene Products Zeist B.V., Neth.). PCT Int. Appl. WO 2001034657 A1 **20010517**, 14 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-NL812 20001108. PRIORITY: EP 1999-203726 19991108.

AB The oxidn. was carried out in the presence of a di-tertiary-alkyl nitroxyl such as 4-hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl and optional sodium **hypochlorite** in an aq. reaction medium at a pH < 7. The process exhibits a preference of primary over secondary alc. functions and is particularly advantageous for oxidizing primary hydroxy groups in carbohydrates such as starch into carbaldehyde groups rather than carboxylic groups. The selectivities of primary over secondary alc. functions and of alc. to aldehyde over aldehyde to carboxylic acid can be effected by selecting specific di-tertiary-alkyl nitroxyl analogs and by carrying out the oxidn. at different conditions (temp., pH and rate of addn. of oxidizing agent). The oxidized products can be used as **chelating** agents for metals and the like and as absorbent materials.

IT **7681-52-9**, Sodium **hypochlorite**  
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

.Cl-OH

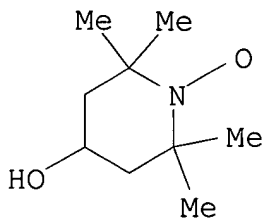
● Na

IT **2226-96-2**, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
**2564-83-2**, 2,2,6,6-Tetramethylpiperidin-1-oxyl  
**6599-87-7**, 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl

**14691-89-5**, 4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl  
(oxidizing agent; Selective oxidn. of primary alc. functions into  
carbaldehyde groups with di-tertiary-alkyl nitroxyl and  
**hypochlorite**)

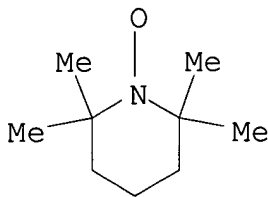
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



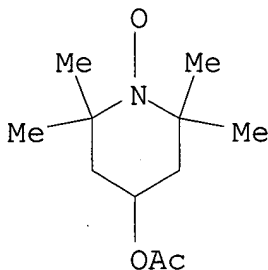
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



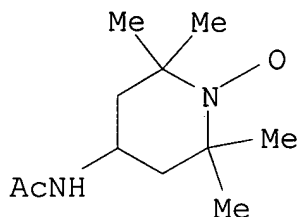
RN 6599-87-7 HCA

CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA  
INDEX NAME)



RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA  
INDEX NAME)



- IC ICM C08B031-18  
ICS C08B015-04; C07H007-033
- CC 44-6 (Industrial Carbohydrates)  
Section cross-reference(s): 33
- ST selective oxidn primary alc carbaldehyde polysaccharide starch;  
nitroxyl **hypochlorite** oxidizing agent
- IT Absorbents  
Oxidation  
Oxidizing agents  
(Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and **hypochlorite**)
- IT **Hypochlorites**  
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and **hypochlorite**)
- IT **7681-52-9, Sodium hypochlorite**  
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)
- IT **2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl**  
**2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl**  
**6599-87-7, 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl**  
**14691-89-5, 4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl**  
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and **hypochlorite**)
- IT **2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl**  
**2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl**  
**6599-87-7, 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl**  
**14691-89-5, 4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl**  
(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and **hypochlorite**)

L62 ANSWER 18 OF 36 HCA COPYRIGHT 2005 ACS on STN

134:312700 Polysaccharide aldehydes, their oxidation preparation, and paper containing them. Cimecioglu, Levent A.; Thomaidis, John S. (National Starch and Chemical Investment Holding Corp., USA). Jpn.

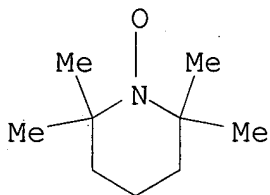
Kokai Tokyo Koho JP 2001122904 A2 **20010508**, 42 pp.  
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-247623 20000817.  
PRIORITY: US 1999-375931 19990817; US 2000-636069 20000810.

AB The polysaccharide aldehydes with a minimal carboxylic acid group content and .ltoreq.15 mol% [based on 1 mol anhyd. sugar unit (ASU)] C6-aldehyde group, useful for paper strengthening agents, are manufd. by oxidizing polysaccharides in the presence of oxidants having an equiv. oxidizing power of .ltoreq.14.18 g (based on 1 mol ASU) **active C1** and a sufficient amt. of nitroxyl radical mediators in H<sub>2</sub>O at .ltoreq.15.degree. and pH 8.0-10.5. Thus, 0.28 mol (based on ASU) cationic maize starch was oxidized in the presence of 5 mol% **NaClO** and TEMPO at <15.degree. and pH 9.5 to show contents of aldehyde group and carboxylic acid group, 2.3 mol% and 1.1 mol%, resp.

IT **2564-83-2**, TEMPO **14691-89-5**, 4-Acetamido-TEMPO  
(mediator; oxidn. prepn. of polysaccharide aldehydes for paper strengthening agents)

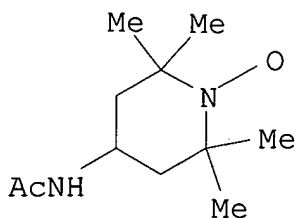
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**

(oxidant; oxidn. prepn. of polysaccharide aldehydes for paper strengthening agents)

RN 7681-52-9 HCA

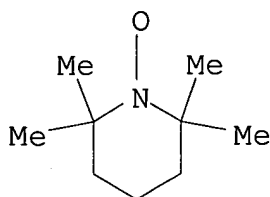
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



Cl-OH

● Na

- IC ICM C08B031-18.  
ICS D21H017-47; D21H021-20
- CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)  
Section cross-reference(s): 44
- IT **2564-83-2**, TEMPO **14691-89-5**, 4-Acetamido-TEMPO  
(mediator; oxidn. prepn. of polysaccharide aldehydes for paper  
strengthening agents)
- IT **7681-52-9** 13824-96-9  
(oxidant; oxidn. prepn. of polysaccharide aldehydes for paper  
strengthening agents)
- L62 ANSWER 19 OF 36 HCA COPYRIGHT 2005 ACS on STN
- 134:281053 TEMPO-mediated oxidation of maltodextrins and D-glucose:  
effect of pH on the selectivity and **sequestering** ability  
of the resulting polycarboxylates. Thaburet, Jean-Francois;  
Merbouh, Naby; Ibert, Mathias; Marsais, Francis; Queguiner, Guy  
(Institut de Recherche en Chimie Organique Fine (IRCOF), UMR 6014  
(CNRS), INSA of Rouen, Mont-Saint-Aignan, F-76131, Fr.).  
Carbohydrate Research, 330(1), 21-29 (English) **2001**.  
CODEN: CRBRAT. ISSN: 0008-6215. OTHER SOURCES: CASREACT  
134:281053. Publisher: Elsevier Science Ltd..
- AB Maltodextrins were oxidized to poly-glucuronic acids with the  
ternary oxidn. system: **NaOCl**-NaBr-2,2,6,6-  
tetramethylpiperidine-1-oxyl (TEMPO). The chemoselective oxidn. at  
the primary alc. groups was shown to be strongly pH dependent.  
Oxidn. of polysaccharides was best achieved at pH 9.5 in order to  
minimize depolymn., whereas oxidn. of oligosaccharides required  
stronger alk. conditions (pH 11-11.5). The resulting sodium  
polyglucuronates present interesting **sequestering**  
properties, the best of which being obtained from maltodextrins with  
the highest ds.p. The same oxidn. process allowed the convenient  
conversion of D-glucose to D-glucaric acid in high yield (>90%),  
under strongly basic conditions (pH>11.5).
- IT **2564-83-2**, Tempo **7681-52-9**, Sodium  
**hypochlorite**  
(prepn. of glucuronic or poly-glucuronic acids for use as calcium  
**sequestering** agents by TEMPO-mediated regiospecific  
oxidn. of maltodextrins or D-glucose)
- RN 2564-83-2 HCA
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 33-5 (Carbohydrates)

Section cross-reference(s): 22, 61

ST maltodextrin glucose TEMPO regiospecific oxidn prepn glucuronate  
polyglucuronate; calcium **sequestering** agent prepn  
glucuronate polyglucuronate; pH effect TEMPO regiospecific oxidn  
prepn glucuronate polyglucuronate

IT pH  
(effect of on prepn. of glucuronic or poly-glucuronic acids for  
use as calcium **sequestering** agents by TEMPO-mediated  
regiospecific oxidn. of maltodextrins or D-glucose)

IT Uronic acids  
(polyuronic acids; prepn. of glucuronic or poly-glucuronic acids  
for use as calcium **sequestering** agents by  
TEMPO-mediated regiospecific oxidn. of maltodextrins or  
D-glucose)

IT Oxidation  
Regiochemistry

**Sequestering agents**

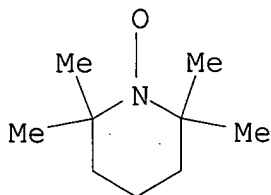
(prepn. of glucuronic or poly-glucuronic acids for use as calcium  
**sequestering** agents by TEMPO-mediated regiospecific  
oxidn. of maltodextrins or D-glucose)

IT Oligosaccharides, preparation  
Polysaccharides, preparation

(prepn. of glucuronic or poly-glucuronic acids for use as calcium  
**sequestering** agents by TEMPO-mediated regiospecific  
oxidn. of maltodextrins or D-glucose)

IT Uronic acids  
(prepn. of glucuronic or poly-glucuronic acids for use as calcium  
**sequestering** agents by TEMPO-mediated regiospecific

- oxidn. of maltodextrins or D-glucose)
- IT 7440-70-2, Calcium, reactions  
(prepn. of glucuronic or poly-glucuronic acids for use as calcium **sequestering** agents by TEMPO-mediated regiospecific oxidn. of maltodextrins or D-glucose)
- IT 9005-25-8DP, Starch, C6-oxidized, preparation 9050-36-6DP, Maltodextrin, C6-oxidized 13978-96-6P, Sodium glucarate 95839-14-8P 197388-71-9DP, derivs. 332853-35-7P 332853-37-9DP, derivs. 333316-19-1DP, derivs.  
(prepn. of glucuronic or poly-glucuronic acids for use as calcium **sequestering** agents by TEMPO-mediated regiospecific oxidn. of maltodextrins or D-glucose)
- IT 50-99-7, D-Glucose, reactions 585-88-6, Maltitol **2564-83-2**, Tempo 7647-15-6, Sodium bromide, reactions **7681-52-9**, Sodium **hypochlorite** 9005-25-8, Starch, reactions 9050-36-6, Maltodextrin 32860-62-1, Maltotriitol  
(prepn. of glucuronic or poly-glucuronic acids for use as calcium **sequestering** agents by TEMPO-mediated regiospecific oxidn. of maltodextrins or D-glucose)
- L62 ANSWER 20 OF 36 HCA COPYRIGHT 2005 ACS on STN
- 133:104629 Enantioselective synthesis of .alpha.-hydroxy acids through oxidation of terminal alkenes with AD-mix/TEMPO. Aladro, F. Javier; Guerra, Francisco M.; Moreno-Dorado, F. Javier; Bustamante, Jesus M.; Jorge, Zacarias D.; Massanet, Guillermo M. (Departamento de Quimica Organica, Facultad de Ciencias, Universidad de Cadiz, Cadiz, 11510, Spain). Tetrahedron Letters, 41(17), 3209-3213 (English) **2000**. CODEN: TELEAY. ISSN: 0040-4039. OTHER SOURCES: CASREACT 133:104629. Publisher: Elsevier Science Ltd..
- AB .alpha.-Hydroxy acids are enantioselectively prepd. in good to excellent yields. by a 2-step oxidn. process involving the asym. dihydroxylation of a terminal alkene and subsequent oxidn. with TEMPO/**NaOCl**/NaClO<sub>2</sub>. No fragmentation of the glycol intermediate was detected.
- IT **2564-83-2**, TEMPO  
(stereoselective prepn. of .alpha.-hydroxy acids via an enantioselective dihydroxylation/oxidn. sequence of terminal alkenes with AD-mix/TEMPO)
- RN 2564-83-2 HCA
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- CC 21-2 (General Organic Chemistry)
- IT **2564-83-2**, TEMPO 148618-32-0, AD-mix-.beta. 153130-59-7,  
AD-mix-.alpha.  
(stereoselective prepn. of .alpha.-hydroxy acids via an  
enantioselective dihydroxylation/oxidn. sequence of terminal  
alkenes with AD-mix/TEMPO)
- IT 98-83-9, .alpha.-Methylstyrene, reactions 100-42-5, Styrene,  
reactions 300-57-2, Allylbenzene 384-64-5, .alpha.-  
(Trifluoromethyl)styrene 2495-37-6, Benzyl **methacrylate**  
7378-37-2 7764-50-3 15870-10-7, 2-Methyl-1-heptene 52562-19-3  
72934-86-2 282551-65-9  
(stereoselective prepn. of .alpha.-hydroxy acids via an  
enantioselective dihydroxylation/oxidn. sequence of terminal  
alkenes with AD-mix/TEMPO)
- L62 ANSWER 21 OF 36 HCA COPYRIGHT 2005 ACS on STN
- 132:94858 Chemical modification of pulp fibers by TEMPO-mediated  
oxidation. Kitaoka, Takuya; Isogai, Akira; Onabe, Fumihiko  
(Graduate School of Agricultural and Life Science, The University of  
Tokyo, Tokyo, 113-8657, Japan). Nordic Pulp & Paper Research  
Journal, 14(4), 279-284 (English) **1999**. CODEN: NPPJEG.  
ISSN: 0283-2631. Publisher: Nordic Pulp & Paper Research Journal.
- AB A bleached hardwood kraft pulp was oxidized with TEMPO  
(2,2,6,6-tetramethyl-1-piperidinyloxy radical), NaBr, and  
**NaClO** in pulp suspensions at pH 10.5 and 20.degree. for 2h.  
The carboxyl content of the oxidized pulp increased up to 0.47  
mmol/g by the TEMPO-mediated oxidn., which was .apprx.8 times as  
much as that of the original pulp. **Viscosity** measurement  
of the oxidized pulps showed that some depolymn. occurred on the  
kraft pulp during the oxidn. Water retention values of the oxidized  
pulps were almost equal to that of the original pulp. When  
handsheets were prepd. from the oxidized pulps, apparent d., tearing  
index, and folding endurance of the handsheets were roughly const.  
in the range of carboxyl content from 0.06 to 0.47 mmol/g. On the  
other hand, the introduction of carboxyl groups had some influence  
on dry tensile index, elongation at the breaking point, Young's  
modulus, and opacity of the handsheets prepd. thereof. When a  
polyamideamine-epichlorohydrin resin (I) was added to pulp  
suspensions, higher retention of I was achieved by using the  
oxidized pulp and the max. wet strength was obtained for the  
oxidized pulp with carboxyl content of 0.12 mmol/g. Probably the  
introduction of carboxyl groups into the pulp increases opportunity  
of electrostatic interactions between anionic pulp fibers and  
cationic I mols. in pulp suspensions. When the oxidized pulp had  
carboxyl content >0.2 mmol/g, but wet strength of the handsheets  
decreased.
- CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

L62 ANSWER 22 OF 36 HCA COPYRIGHT 2005 ACS on STN

130:224921 Cleaning of water filters with calcium-binding agents and catalytic oxidation in the presence of a di-tert-nitroxyl compound. Besemer, Arie Cornelis; Jetten, Jan Matthijs; Broens, Lute (Norit Membraan Technologie B.V., Neth.). PCT Int. Appl. WO 9915256 A1 **19990401**, 17 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-NL544 19980921. PRIORITY: NL 1997-1007086 19970919.

AB Filters for water purifn. can be cleaned by treatment with a calcium-binding agent, preferably followed by catalytic oxidn., for example with **hypochlorite** in the presence of 2,2,6,6-tetramethylpiperidine-N-oxyl or a similar nitroxyl. Another oxidn. system is with H2O2 in the presence of a transition metal complex with a cyclic polyamine. The calcium-binding agent can be a dicarboxypolysaccharide, a phosphate, or a polyacylamine (e.g., EDTA or NTA). In particular, dicarboxyinulin, optionally in combination with a zeolite, can be used as calcium-binding agent.

IT **9003-01-4D, Polyacrylic acid, salts**  
(calcium **sequestering** agents; cleaning of water filters with calcium-binding agents and catalytic oxidn. in presence of di-tert-nitroxyl compd.)

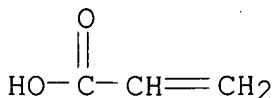
RN 9003-01-4 HCA

CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7

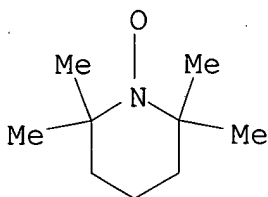
CMF C3 H4 O2



IT **2564-83-2, 2,2,6,6-Tetramethylpiperidine-N-oxyl**  
(cleaning of water filters with calcium-binding agents and catalytic oxidn. in presence of di-tert-nitroxyl compd.)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IC ICM B01D041-00  
ICS B01D065-06
- CC 48-1 (Unit Operations and Processes)  
Section cross-reference(s): 47, 61
- ST water purifn filter cleaning; calcium **sequestration**  
catalytic oxidn water filter cleaning
- IT Amines, reactions  
(N-glycyl derivs., calcium **sequestering** agents;  
cleaning of water filters with calcium-binding agents and  
catalytic oxidn. in presence of di-tert-nitroxyl compd.)
- IT Polysaccharides, reactions  
(carboxy derivs., calcium **sequestering** agents; cleaning  
of water filters with calcium-binding agents and catalytic oxidn.  
in presence of di-tert-nitroxyl compd.)
- IT **Sequestering** agents  
(cleaning of water filters with calcium-binding agents and  
catalytic oxidn. in presence of di-tert-nitroxyl compd.)
- IT 60-00-4, EDTA, reactions 77-92-9, Citric acid, reactions  
139-13-9, NTA 7758-29-4, STPP **9003-01-4D**,  
**Polyacrylic** acid, salts 10380-08-2D, Tripolyphosphoric  
acid, salts  
(calcium **sequestering** agents; cleaning of water filters  
with calcium-binding agents and catalytic oxidn. in presence of  
di-tert-nitroxyl compd.)
- IT 9005-80-5, Inulin  
(carboxy derivs., calcium **sequestering** agents; cleaning  
of water filters with calcium-binding agents and catalytic oxidn.  
in presence of di-tert-nitroxyl compd.)

L62 ANSWER 23 OF 36 HCA COPYRIGHT 2005 ACS on STN

130:224554 Resin containing adsorbed catalyst for electively oxidizing  
primary hydroxyl groups of organic compounds. Ochi, Kiyoshige;  
Takahashi, Hidenori; Tanaka, Hideki; Sugiyama, Hiroshi; Fujisaki,  
Isao; Ori, Kazutomo (Chugai Seiyaku Kabushiki Kaisha, Japan). PCT  
Int. Appl. WO 9912644 A1 **19990318**, 27 pp. DESIGNATED  
STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU,  
CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, KE, KG,  
KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,  
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US,

UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1998-JP3877 19980831. PRIORITY: JP 1997-243015 19970908.

AB A process for selectively oxidizing primary hydroxyl groups of org. compds. is characterized by reacting an electrolytically oxidized halogen-contg. compd. with an org. compd. having a primary hydroxyl group in the presence of a resin contg. an adsorbed oxidized amine. Thus, TEMPO 150 mg was mixed with and absorbed (.gtoreq.98.0) by **polyacrylate** resin Diaion HP 2MG 75 mL, into which methyl-.alpha.-D-glucopyranoside 9.7 g was added, which was oxidized to methyl-.alpha.-D-glucopyranosiduronic acid with dropping sodium **hypochlorite**.

IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. catalyst; resin contg. adsorbed catalyst for electively oxidizing primary hydroxyl groups of org. compds.)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

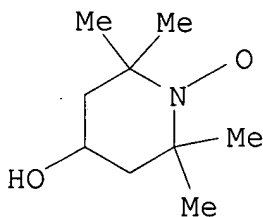
Cl-OH

● Na

IT **2226-96-2**, 4-Hydroxy TEMPO **2564-83-2**, TEMPO  
**3225-26-1 14691-89-5**, 4-Acetamido-TEMPO  
(resin contg. adsorbed catalyst for electively oxidizing primary hydroxyl groups of org. compds.)

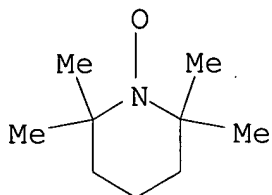
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



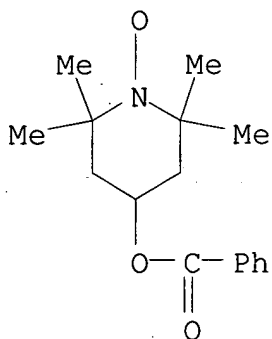
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



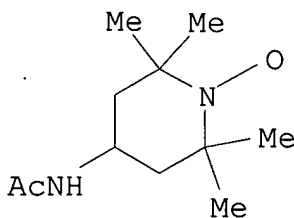
RN 3225-26-1 HCA

CN 1-Piperidinyloxy, 4-(benzoyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM B01J031-06

ICS C07H007-033; C08L101-00; C08K005-32

CC 44-6 (Industrial Carbohydrates)

ST catalyst adsorbed resin primary hydroxyl group oxidn; TEMPO absorbed **polyacrylate** catalyst methylglucopyranoside oxidn methylglucopyranosiduronic acid prepnIT **Acrylic** polymers, uses

(resin contg. adsorbed catalyst for electively oxidizing primary hydroxyl groups of org. compds.)

IT **7681-52-9**, Sodium **hypochlorite**



(oxidn. catalyst; resin contg. adsorbed catalyst for electively oxidizing primary hydroxyl groups of org. compds.)

- IT **2226-96-2**, 4-Hydroxy TEMPO **2564-83-2**, TEMPO  
**3225-26-1** 9003-53-6, Polystyrene 9060-05-3, Amberlite  
 XAD 2 **14691-89-5**, 4-Acetamido-TEMPO 98225-81-1, Diaion  
 SP 207 99549-82-3, Diaion HP 2MG  
 (resin contg. adsorbed catalyst for electively oxidizing primary hydroxyl groups of org. compds.)

L62 ANSWER 24 OF 36 HCA COPYRIGHT 2005 ACS on STN

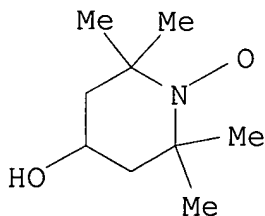
130:124823 Preparation of hydroxymalonic acid by oxidation of glycerin or glyceric acid. Yokoi, Kenji; Nakagawa, Ryuichi (Lion Corp., Japan). Jpn. Kokai Tokkyo Koho JP 11021266 A2 **19990126** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-187606 19970627.

AB Hydroxymalonic acid (I) is prepd. by oxidn. of glycerin and/or glyceric acid with Cl-contg. oxidizing agents in the presence of nitroxide radicals and alkali metal halides and/or alk. earth halides. An aq. **NaClO** soln. was added dropwise to a **mixt.** of an aq. glycerin soln., 2,2,6,6-tetramethylpiperidin-1-oxyl, and an aq. NaBr soln. at 10.degree. and pH 8-9 to give a product contg. 85% I, vs. 58% for a control using no NaBr.

IT **2226-96-2**, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
**2564-83-2**, 2,2,6,6-Tetramethylpiperidin-1-oxyl  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)

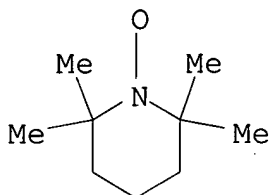
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite**  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)  
 RN 7681-52-9 HCA  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C059-245  
 ICS C07C051-275  
 CC 23-16 (Aliphatic Compounds)  
 IT **2226-96-2**, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
**2564-83-2**, 2,2,6,6-Tetramethylpiperidin-1-oxyl 7447-40-7,  
 Potassium chloride, uses 7647-15-6, Sodium bromide, uses  
 7758-02-3, Potassium bromide, uses 7782-50-5, Chlorine, uses  
 7789-48-2, Magnesium bromide  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)  
 IT 56-81-5, Glycerin, reactions 473-81-4, Glyceric acid  
**7681-52-9**, Sodium **hypochlorite**  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)  
 L62 ANSWER 25 OF 36 HCA COPYRIGHT 2005 ACS on STN  
 130:97117 Manufacture of tricarboxy starch. Shinpo, Masafumi; Sakaiya, Hisashi; Sumitani, Makoto (Mitsubishi Gas Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11012301 A2 **19990119** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-164284 19970620.  
 AB Title materials, useful for scale inhibitors, pigment dispersants, sizing agents, concrete **admixt.**, and **detergent** builders, etc., are manufd. by tow-step oxidn. of starch with hypohalites in the presence of nitroxyl compds. and then with peroxides in the presence of catalysts. Thus, corn starch was

oxidized with **NaOCl** in the presence of TEMPO and further oxidized with H<sub>2</sub>O<sub>2</sub> in the presence of K<sub>5</sub>PTi<sub>2</sub>W10040 to give tricarboxy starch having CO<sub>2</sub>H content .apprx.100% at 6 position and 31% at 2- and 3-position of glycopyranose units.

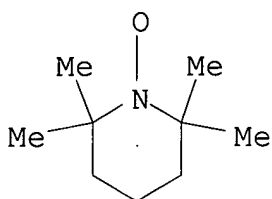
IT **2564-83-2**, TEMPO **7681-52-9**, Sodium

**hypochlorite**

(manuf. of tricarboxy starch by oxidn. with hypohalites, nitroxy compds., and peroxides)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08B031-18

CC 44-6 (Industrial Carbohydrates)

ST starch oxidn tricarboxy sodium **hypochlorite** TEMPO;  
nitroxyl compd oxidn tricarboxy starch manuf

IT **2564-83-2**, TEMPO **7681-52-9**, Sodium

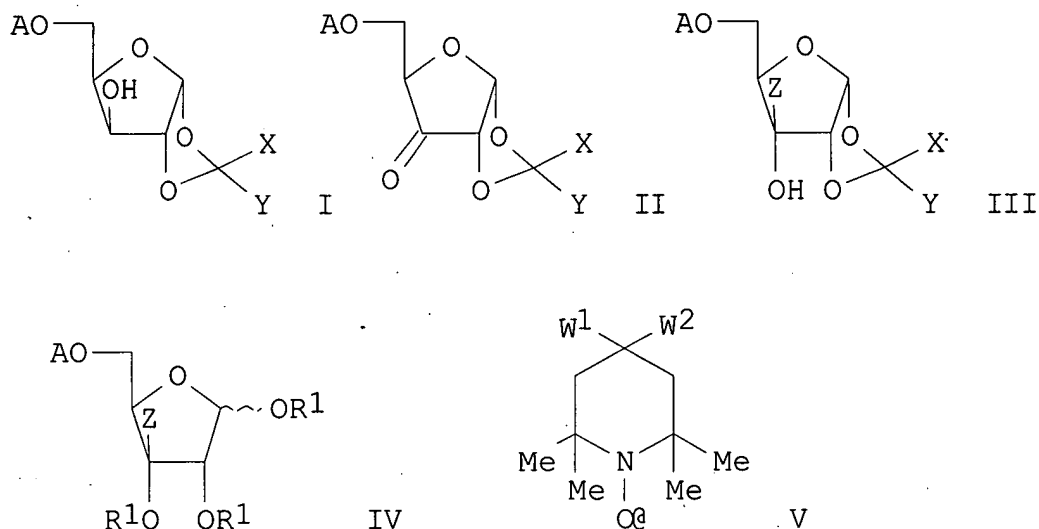
**hypochlorite** 7722-84-1, Hydrogen peroxide, uses

(manuf. of tricarboxy starch by oxidn. with hypohalites, nitroxy compds., and peroxides)

L62 ANSWER 26 OF 36 HCA COPYRIGHT 2005 ACS on STN

128:34981 D-Pentofuranose derivatives and process for the preparation thereof. Nomura, Makoto; Kazuno, Hideki; Sato, Tsutomu; Washinosu, Masato; Tanaka, Motoaki; Matsuda, Akira; Asao, Tetsuji (Taiho Pharmaceutical Co., Ltd., Japan). PCT Int. Appl. WO 9743295 A1 **19971120**, 45 pp. DESIGNATED STATES: W: AU, CA, JP, KR, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1997-JP1427 19970424. PRIORITY: JP 1996-121372 19960516.

GI



AB D-Pentofuranose derivs. represented by general formulas [I, II, III, and IV; wherein A is 4-chlorobenzoyl; R1 = hydrogen, aliph. lower acyl or optionally substituted benzoyl; X, Y = lower alkyl; Z = ethynyl or tri(lower alkyl)silylethynyl; the sugar moiety of general formula I is xylose and those of general formulas III and IV are each ribose] are prepd. A process for the prepn. of D-erythro-pentofuranose-3-ulose derivs. of general formula II involves oxidizing 1,2-isopropylidene-D-xylofuranose derivs. of general formula I with a **hypochlorite** in the presence of a catalytic amt. of a 2,2,6,6-tetramethylpiperidinoxyl compd. (V; W1, W2 = H, lower alkyl; or W1W2 = O). This oxidn. neither uses toxic reagents such as chromic acid nor DMSO which generates di-Me sulfide of bad odor and efficiently and economically gives stable ulose derivs. II. These compds. are useful as intermediates for the synthesis of 3'-C-substituted ribonucleoside derivs., e.g. 1-(3-C-ethynyl-.beta.-D-ribofuranosyl)uracil and -cytosine, having an excellent antitumor activity (no data). Thus, 195 g I (A = 4-chlorobenzoyl, X = Y = Me) and 937 mg V (W1 = W2 = Me) (2,2,6,6-tetramethylpiperidinoxyl) were dissolved in 990 mL CH<sub>2</sub>Cl<sub>2</sub> and ice-cooled, followed by adding 336 mL aq. **NaOCl** (8.5-13.5% **active Cl**), 112 g NaHCO<sub>3</sub>, and 1.9 L H<sub>2</sub>O in one portion, and the resulting mixt. was stirred under ice-cooling to give, after workup, 88% II (A = 4-chlorobenzoyl, X = Y = Me). The latter compd. (6.52 g) was dissolved in THF and cooled to 0.degree. with stirring, followed by adding 50.0 mL 0.5 M ethynylmagnesium bromide/THF (25.0 mmol) dropwise, and the resulting

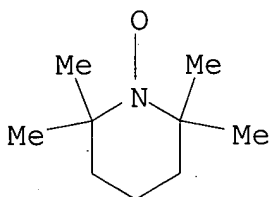
mixt. was stirred under ice-cooling for 40 min to give 89% III (A = 4-chlorobenzoyl, X = Y = Me, Z = ethynyl). This compd. (30.0 g) was refluxed in a mixt. of 120 mL H<sub>2</sub>O and 480 mL AcOH for 4 h to give 65.1% IV (A = 4-chlorobenzoyl, X = ethynyl, R<sub>1</sub> = H), which (1.0 g) was acetylated by 0.90 mL AcCl in the presence of 4-dimethylaminopyridine and Et<sub>3</sub>N in CH<sub>2</sub>Cl<sub>2</sub> at room temp. for 5 h to give 88% IV (A = 4-chlorobenzoyl, X = ethynyl, R<sub>1</sub> = Ac).

IT **2564-83-2**

(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of 1,2-isopropylidene-D-xylofuranose deriv. with **hypochlorite** in presence of tetramethylpiperidinoxyl)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9, Sodium hypochlorite**

(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of 1,2-isopropylidene-D-xylofuranose deriv. with **hypochlorite** in presence of tetramethylpiperidinoxyl)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07H013-06

CC 33-9 (Carbohydrates)

Section cross-reference(s): 1

ST ethynylribofuranose prepn intermediate antitumor nucleoside; trialkylsilylethynylribofuranose intermediate C substituted ribonucleoside; xylofuranose oxidn **hypochlorite**; methylpiperidinoxyl oxidn catalyst; ethynylribofuranosyluracil intermediate prepn; ethynylribofuranosylcytosine intermediate prepn

IT **Hypochlorites**

(oxidizing agents; prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of 1,2-isopropylidene-D-xylofuranose deriv. with **hypochlorite** in presence of

- tetramethylpiperidinoxyl)
- IT Oxidation  
Oxidation catalysts  
Oxidizing agents  
(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of  
1,2-isopropylidene-D-xylofuranose deriv. with  
**hypochlorite** in presence of tetramethylpiperidinoxyl)
- IT **2564-83-2**  
(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of  
1,2-isopropylidene-D-xylofuranose deriv. with  
**hypochlorite** in presence of tetramethylpiperidinoxyl)
- IT 66-22-8, Uracil, reactions 71-30-7, Cytosine 75-36-5, Acetyl  
chloride 79-03-8, Propionyl chloride 79-30-1, Isobutyryl  
chloride 98-88-4, Benzoyl chloride 122-01-0, 4-Chlorobenzoyl  
chloride 122-04-3, 4-Nitrobenzoyl chloride 541-41-3, Ethyl  
chlorocarbonate 874-60-2, 4-Toluoyl chloride 999-97-3,  
Hexamethyldisilazane 1066-54-2, Trimethylsilylacetylene  
4301-14-8, Ethynylmagnesium bromide **7681-52-9**, Sodium  
**hypochlorite** 20031-21-4, 1,2-O-Isopropylidene-D-  
xylofuranose  
(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of  
1,2-isopropylidene-D-xylofuranose deriv. with  
**hypochlorite** in presence of tetramethylpiperidinoxyl)
- IT 10457-14-4P, 2,4-Bis(trimethylsilyl)uracil 18037-10-0P,  
2,4-Bis(trimethylsilyl)cytosine 199787-14-9P 199787-15-0P  
199787-16-1P 199787-17-2P 199787-18-3P 199787-19-4P  
199787-20-7P 199787-21-8P 199787-22-9P 199787-23-0P  
199787-24-1P 199787-25-2P 199787-26-3P 199787-27-4P  
199787-28-5P 199787-29-6P 199787-30-9P 199787-31-0P  
199787-32-1P 199787-33-2P 199787-34-3P 199787-35-4P  
199787-36-5P 199787-37-6P 199787-39-8P 199787-40-1P  
199787-41-2P 199787-42-3P 199787-43-4P 199787-44-5P  
199787-45-6P 199787-46-7P 199787-47-8P  
(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of  
1,2-isopropylidene-D-xylofuranose deriv. with  
**hypochlorite** in presence of tetramethylpiperidinoxyl)
- IT 180300-43-0P, 1-(3-C-Ethynyl-.beta.-D-ribofuranosyl)cytosine  
180300-49-6P, 1-(3-C-Ethynyl-.beta.-D-ribofuranosyl)uracil  
(prepn. of 3-C-substituted D-ribofuranose derivs. via oxidn. of  
1,2-isopropylidene-D-xylofuranose deriv. with  
**hypochlorite** in presence of tetramethylpiperidinoxyl)

L62 ANSWER 27 OF 36 HCA COPYRIGHT 2005 ACS on STN

127:307619 Oxidation of sugars with hypohalides in preparation of  
carboxylates used in **detergents formulation.**

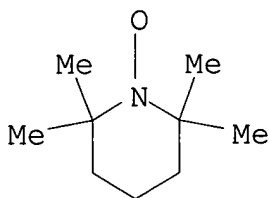
Fleche, Guy (Fleche, Guy, Fr.). Can. Pat. Appl. CA 2193034 AA  
**19970622**, 27 pp. (French). CODEN: CPXXEB. APPLICATION: CA  
1996-2193034 19961216. PRIORITY: FR 1995-15269 19951221.

AB Alk. oxidn. of sugars with hypohalides in presence of TEMPO gave the corresponding carboxylates as detergents. Thus, oxidn. of sorbitol in water with hydrochloric acid in presence of TEMPO gave the corresponding glucaric acid in 33% yield. These carboxylates were used in **detergents formulation** with a whiteness higher than **polyacrylates**.

IT **2564-83-2**, TEMPO  
(oxidn. of sugars with hypohalides in prepn. of carboxylates as detergents)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. of sugars with hypohalides in prepn. of carboxylates as detergents)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07H003-04

ICS C11D003-22; C11D007-26

CC 33-8 (Carbohydrates)

Section cross-reference(s): 46

IT Detergents

(carboxylate sugars; oxidn. of sugars with hypohalides in prepn. of carboxylates used in **detergents formulation**)

IT Carbohydrates, preparation

(carboxylates; oxidn. of sugars with hypohalides in prepn. of carboxylates used in **detergents formulation**)

IT **2564-83-2**, TEMPO

(oxidn. of sugars with hypohalides in prepn. of carboxylates as detergents)

IT 50-70-4, D-Glucitol, reactions 50-99-7, D-Glucose, reactions

69-65-8, Mannitol 131-08-8 585-88-6, Maltitol **7681-52-9**  
 , Sodium **hypochlorite** 9050-36-6, Maltodextrin  
 (oxidn. of sugars with hypohalides in prepn. of carboxylates as  
 detergents)

L62 ANSWER 28 OF 36 HCA COPYRIGHT 2005 ACS on STN

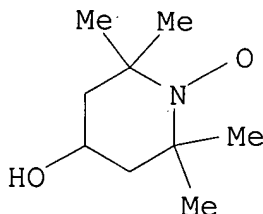
127:95027 Preparation of amide ether carboxylic acids as surfactants by  
 oxidation of polyoxyethylene aminoethyl ethers using nitroxides.  
 Imoto, Hiroyuki; Fujio, Akira; Oshima, Yukiko (Kao Corp., Japan).  
 Jpn. Kokai Tokkyo Koho JP 09151169 A2 **19970610** Heisei, 8  
 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-313922  
 19951201.

AB RCONHCH<sub>2</sub>CH<sub>2</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>-1CH<sub>2</sub>CO<sub>2</sub>M (I; R = C<sub>7</sub>-21 linear or branched  
 alkyl, alkenyl; n = 0-20; M = H, cation), useful as detergents for  
 shampoos, skin care products, and **dishwashing** compds., are  
 prepd. by oxidn. of RCONHCH<sub>2</sub>CH<sub>2</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H (II) with oxidizing  
 agents in the presence of stable free radical nitroxides, optionally  
 followed by neutralization. The reaction is preferably performed in  
 the presence of Cl compds., Br compds., Cu(I) salts, or Fe(II)  
 salts. NO<sub>x</sub>-generating compds. may be addnl. used in the oxidn.  
 reaction. An aq. **NaClO** soln. was added dropwise to a  
 mixt. of II (R = undecyl, n = 3) (prepn. given),  
 2,2,6,6-tetramethylpiperidine-1-oxyl, and CH<sub>2</sub>Cl<sub>2</sub> and the reaction  
 mixt. was further stirred at 20.degree. for 6 h to give I (R =  
 undecyl, n = 3, M = H) at conversion 98% and selectivity 95%.

IT **2226-96-2**, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
**2564-83-2**, 2,2,6,6-Tetramethylpiperidine-1-oxyl  
**2896-70-0**, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl  
**7681-52-9**, Sodium **hypochlorite** **64486-65-3**  
 , 2,2,6,6-Tetramethylpiperidine-1-oxyl-4-sulfate  
 (prepn. of amide ether carboxylic acids as surfactants by oxidn.  
 of polyoxyethylene aminoethyl ethers using nitroxides)

RN 2226-96-2 HCA

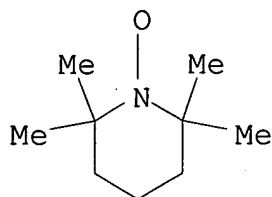
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
 NAME)



RN 2564-83-2 HCA

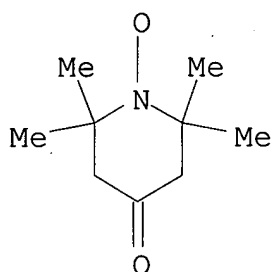
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)





RN 2896-70-0 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

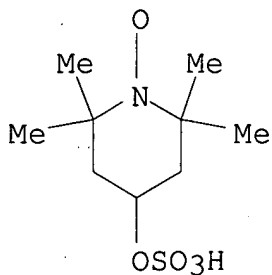
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

RN 64486-65-3 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(sulfooxy)- (9CI) (CA INDEX NAME)



IC ICM C07C233-18

ICS C07C231-12; C07C233-20; C07B061-00; C11D001-06

CC 23-18 (Aliphatic Compounds)

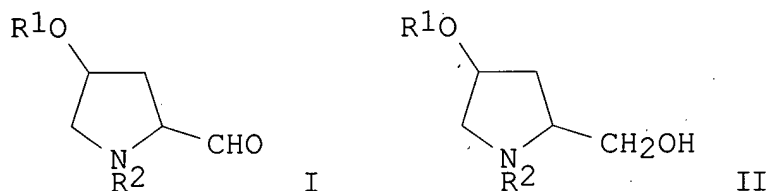
Section cross-reference(s): 46, 62

- IT **2226-96-2**, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
**2564-83-2**, 2,2,6,6-Tetramethylpiperidine-1-oxyl  
**2896-70-0**, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl  
**7681-52-9**, Sodium **hypochlorite** 7782-50-5,  
Chlorine, reactions 11104-93-1, Nitrogen oxide, reactions  
**64486-65-3**, 2,2,6,6-Tetramethylpiperidine-1-oxyl-4-sulfate  
(prepn. of amide ether carboxylic acids as surfactants by oxidn.  
of polyoxyethylene aminoethyl ethers using nitroxides)

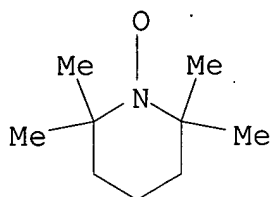
L62 ANSWER 29 OF 36 HCA COPYRIGHT 2005 ACS on STN

- 126:171474 Preparation of pyrrolidincarbaaldehyde derivatives by  
oxidation of appropriate alcohols. Suga, Hiroshi; Iwasaki, Fumiaki  
(Tokuyama Corp, Japan). Jpn. Kokai Tokkyo Koho JP 09003043 A2  
**19970107** Heisei, 8 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1995-150103 19950616.

GI



- AB Claimed is a process for prepn. of the title compds. (I; R1 = protecting group of OH, R2 = protecting group of NH2) by oxidn. of appropriate alcs. (II; R1, R2 = same as above) in the presence of hypohalorites and nitroxyl compds. in **mixt.** solvents of **H2O** and water-sol. org. solvents.. I are prepd. in an industrial manner efficiently. Thus, II (R1 = tert-butyl dimethylsilyl, R2 = tert-butoxycarbonyl) was oxidized by **NaClO** in the presence of 2,2,6,6-tetramethyl-1-piperidinyloxy to give 73.5% I (R1, R2 = same as above).
- IT **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy  
(prepn. of pyrrolidincarbaaldehyde derivs. by oxidn. of appropriate alcs.)
- RN 2564-83-2 HCA
- CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C07D207-12

CC 27-10 (Heterocyclic Compounds (One Hetero Atom))

IT **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy  
(prepn. of pyrrolidincarbaaldehyde derivs. by oxidn. of  
appropriate alcs.)

L62 ANSWER 30 OF 36 HCA COPYRIGHT 2005 ACS on STN

126:91000 Manufacture of oxidized polymeric carbohydrate ethers as  
**sequestering** agents. Heeres, Andre; Bleeker, Ido Pieter;  
Gotlieb, Kornelis Fester; Van Doren, Hendrick Arend (Cooperatieve  
Verkoop- en Productievereniging van Aardappelmeel en Derivaten  
"Avebe" G. A., Neth.; Heeres, Andre; Bleeker, Ido Pieter; Gotlieb,  
Kornelis Fester; Van Doren, Hendrick Arend). PCT Int. Appl. WO  
9638484 A1 **19961205**, 51 pp. DESIGNATED STATES: W: AL,  
AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI,  
GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV,  
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG; RW: AT,  
BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE,  
IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO  
1996-NL218 19960603. PRIORITY: NL 1995-1000495 19950602.

AB The title ethers or their mixts. with a d.p. of .gtoreq.10 possess  
an excellent **sequestering** and anticrustation activity and  
are used as biodegradable (no data) additives in cleaning agents.  
The ethers are manufd. by selective oxidn. of at least a part of the  
primary OH groups of polymeric carbohydrate ethers with d.p.  
.gtoreq.10. The oxidn., e.g., of carboxymethyl or hydroxyethyl  
starch, CMC, etc., is carried out with **NaOCl** utilizing a  
catalytic amt. of stable nitroxide radicals, specifically  
2,2,6,6,-tetramethylpiperidine-N-oxy, and optionally, NaBr.

IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of oxidized polymeric carbohydrate ethers  
as **sequestering** agents)

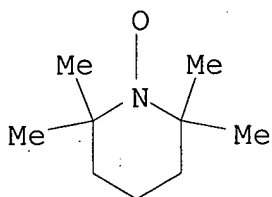
RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT **2564-83-2**, 2,2,6,6,-Tetramethylpiperidine-N-oxyl  
 (oxidn. catalyst; manuf. of oxidized polymeric carbohydrate  
 ethers as **sequestering** agents)  
 RN 2564-83-2 HCA  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

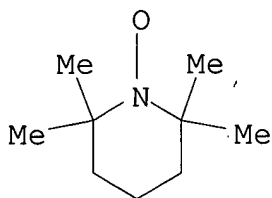


IC ICM C08B031-18  
 ICS C08B011-20; C11D003-22  
 CC 44-6 (Industrial Carbohydrates)  
 Section cross-reference(s): 43, 46  
 ST carbohydrate ether oxidn **sequestering** agent manuf; oxidn  
 selective carbohydrate ether **sequestering** agent;  
**hypochlorite** tetramethylpiperidine oxyl selective oxidn  
 carbohydrate; piperidine tetramethyl oxyl **hypochlorite**  
 oxidn carbohydrate; carboxymethyl starch selective oxidn  
**sequestering** agent; CMC selective oxidn **sequestering**  
 agent manuf  
 IT Oxidation catalysts  
 (2,2,6,6,-tetramethylpiperidine-N-oxyl and sodium bromide; manuf.  
 of oxidized polymeric carbohydrate ethers as **sequestering**  
 agents)  
 IT **Detergents**  
 (liq.; manuf. of oxidized polymeric carbohydrate ethers  
 as **sequestering** agents for use in)  
 IT **Sequestering** agents  
 (manuf. of oxidized polymeric carbohydrate ethers as  
**sequestering** agents)  
 IT Detergents  
 (manuf. of oxidized polymeric carbohydrate ethers as  
**sequestering** agents for use in)  
 IT Oxidation  
 (selective; manuf. of oxidized polymeric carbohydrate ethers as

- sequestering agents)**
- IT Oxidizing agents  
(sodium **hypochlorite**; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT 36562-70-6, Polyguluronic acid  
(carboxymethylation and oxidn. of; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT 3926-62-3, Sodium chloroacetate  
(carboxymethylation of polyguluronic acid; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT 75-21-8, Oxirane, reactions  
(ethoxylation of polyguluronic acid; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT 9000-11-7DP, oxidized 9004-62-0DP, Hydroxyethyl cellulose, oxidized 9005-25-8DP, Starch, 2-nitrobutyl, oxidized, preparation 9005-27-0DP, Hydroxyethyl starch, oxidized 9005-82-7DP, Amylose, dihydroxypropyl, oxidized 9049-76-7DP, Hydroxypropyl starch, oxidized 9057-06-1DP, Carboxymethyl starch, oxidized 9063-39-2DP, Cyanoethyl starch, oxidized 36562-70-6DP, Polyguluronic acid, carboxymethyl and hydroxyethyl derivs., oxidized (manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT **7681-52-9**, Sodium **hypochlorite**  
(oxidn. agent; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- IT **2564-83-2**, 2,2,6,6,-Tetramethylpiperidine-N-oxyl  
7647-15-6, Sodium bromide, uses  
(oxidn. catalyst; manuf. of oxidized polymeric carbohydrate ethers as **sequestering agents**)
- L62 ANSWER 31 OF 36 HCA COPYRIGHT 2005 ACS on STN  
125:279042 Oxidation of primary alcohol groups of naturally occurring polysaccharides with 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion. Chang, Pahn S.; Robyt, John F. (Dep. Biochem. Biophys., Iowa State Univ., Ames, IA, 50011, USA). Journal of Carbohydrate Chemistry, 15(7), 819-830 (English) **1996**. CODEN: JCACDM. ISSN: 0732-8303. Publisher: Dekker.
- AB The primary alc. groups of ten polysaccharides, with widely different structures and water solubilities, were oxidized to carboxyl groups using 2,2,6,6-tetramethyl-1-piperidine oxoammonium ion (TEMPO; 2,2,6,6-tetramethyl-1-piperidinyloxy) at pH 10.8 and 0.degree.C. The yield and selectivity for the primary alc. group were high for all ten of the polysaccharides. The oxidn. greatly increased the water-soly. of the polysaccharides. Water-insol. polysaccharides such as amylose, cellulose, and chitin became water-sol. to the extent of approx. 10% (w/v). The water-sol. polysaccharides had their degree of soly. doubled or tripled. The specific optical rotation, **viscosity**, and gelling

properties with calcium ion were detd. The oxidized polysaccharides are new anionic polymers with unique structures that could have application as gums, gels, and films.

- IT **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy  
**7681-52-9**, Sodium **hypochlorite**  
 (chemoselective oxidn. polysaccharides with **hypochlorite**  
 and tetramethylperidinyloxy)  
 RN 2564-83-2 HCA  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



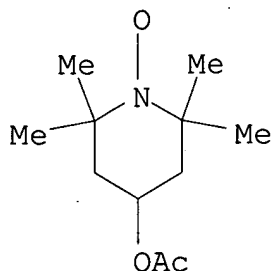
- RN 7681-52-9 HCA  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

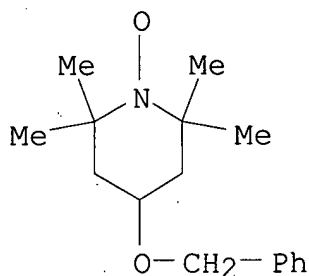
- CC 44-6 (Industrial Carbohydrates)  
 Section cross-reference(s): 33  
 ST oxidn piperidine oxoammonium polysaccharide; **hypochlorite**  
 piperidinyloxy oxidn starch dextran cellulose; chitosan pullulan  
 chitin **hypochlorite** piperidinyloxy oxidn  
 IT Kinetics of oxidation  
 Oxidizing agents  
 (chemoselective oxidn. polysaccharides with **hypochlorite**  
 and tetramethylperidinyloxy)  
 IT Polysaccharides, reactions  
 (chemoselective oxidn. polysaccharides with **hypochlorite**  
 and tetramethylperidinyloxy)  
 IT Oxidation  
 (chemoselective, chemoselective oxidn. polysaccharides with  
**hypochlorite** and tetramethylperidinyloxy)  
 IT Regiochemistry  
 (chemoselectivity, chemoselective oxidn. polysaccharides with  
**hypochlorite** and tetramethylperidinyloxy)  
 IT Polysaccharides, preparation  
 (oxidized, water-sol.; chemoselective oxidn. polysaccharides with

- hypochlorite** and tetramethylperidinyloxy)
- IT 1398-61-4, Chitin **2564-83-2**, 2,2,6,6-Tetramethyl-1-piperidinyloxy **7681-52-9**, Sodium **hypochlorite**  
9004-32-4 9004-34-6, Cellulose, reactions 9004-54-0, Dextran, reactions 9005-25-8, Starch, reactions 9005-82-7, Amylose  
9012-76-4, Chitosan 9037-22-3, Amylopectin 9057-02-7, Pullulan  
136510-13-9, Alternan  
(chemoselective oxidn. polysaccharides with **hypochlorite** and tetramethylperidinyloxy)
- IT 1398-61-4DP, Chitin, oxidized 9000-11-7DP, oxidized 9004-34-6DP, Cellulose, oxidized 9004-54-0DP, Dextran, oxidized 9005-25-8DP, Starch, oxidized 9005-82-7DP, Amylose, oxidized 9012-76-4DP, Chitosan, oxidized 9037-22-3DP, Amylopectin, oxidized 9057-02-7DP, Pullulan, oxidized 136510-13-9DP, Alternan, oxidized  
(chemoselective oxidn. polysaccharides with **hypochlorite** and tetramethylperidinyloxy)
- L62 ANSWER 32 OF 36 HCA COPYRIGHT 2005 ACS on STN  
125:247213 Preparation of senecio aldehyde from 3-hydroxy-3-methylbutanol or 3-methyl-3-methoxybutanol. Iwasaki, Hideji; Oonishi, Takashi (Kuraray Co, Japan). Jpn. Kokai Tokkyo Koho JP 08198795 A2 **19960806** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-26197 19950120.
- AB Senecio aldehyde (I), useful as an intermediate for senecioic acid and citral, etc., is prepd. by oxidn. of HOCMe<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH (II) or MeOCMe<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>OH with **hypochlorite** salts in the presence of N-oxyl compds., followed by dehydration or dealkoxylation of the resulting HOCMe<sub>2</sub>CH<sub>2</sub>CHO (III) or MeOCMe<sub>2</sub>CH<sub>2</sub>CHO, resp. An aq. **NaClO** soln. was added dropwise to a **mixt.** of II, **H<sub>2</sub>O**, KH<sub>2</sub>PO<sub>4</sub>, 4-benzyloxy-2,2,6,6-tetramethylpiperidinyloxy, and NaBr at 5-10.degree. and the reaction mixt. was further stirred at 5-10.degree. for 30 min to give III at conversion 100% and selectivity 89.2%. The reaction mixt. was heated to 140.degree. to give 86.0% I from a distillate.
- IT **6599-87-7 31645-22-4**  
(prepn. of senecio aldehyde from hydroxymethylbutanol or methylmethoxybutanol)
- RN 6599-87-7 HCA  
CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 31645-22-4 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(phenylmethoxy) - (9CI) (CA INDEX NAME)

IT **7681-52-9**, Sodium **hypochlorite**  
(prepn. of senecio aldehyde from hydroxymethylbutanol or methylmethoxybutanol)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C047-21

ICS B01J031-02; C07C045-29; C07C045-72; C07C045-74

ICA C07B061-00

CC 23-14 (Aliphatic Compounds)

Section cross-reference(s): 62

IT **6599-87-7 31645-22-4**

(prepn. of senecio aldehyde from hydroxymethylbutanol or methylmethoxybutanol)

IT 2568-33-4, 3-Hydroxy-3-methylbutanol **7681-52-9**, Sodium **hypochlorite** 56539-66-3, 3-Methyl-3-methoxybutanol



(prepn. of senecio aldehyde from hydroxymethylbutanol or methylmethoxybutanol)

L62 ANSWER 33 OF 36 HCA COPYRIGHT 2005 ACS on STN

125:221189 3-Methyl-3-methoxybutanal and preparation of this compounds and 3-hydroxy-3-methylbutanal from the corresponding butanol derivatives. Iwasaki, Hideji; Mayahara, Kunio; Oonishi, Takashi (Kuraray Co, Japan). Jpn. Kokai Tokkyo Koho JP 08176053 A2 **19960709** Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-337243 19941226.

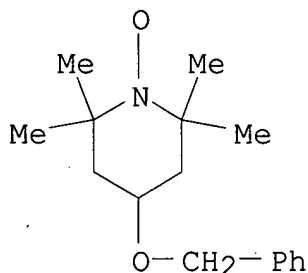
AB  $\text{HOCMe}_2\text{CH}_2\text{CHO}$  (I) and/or  $\text{MeOCMe}_2\text{CH}_2\text{CHO}$  (II), useful as intermediates for senecioaldehyde and senecioic acid in manuf. of drugs, agrochems, and perfumes, are prepd. by oxidn. of  $\text{HOCMe}_2\text{CH}_2\text{CH}_2\text{OH}$  (III) and/or  $\text{MeOCMe}_2\text{CH}_2\text{CH}_2\text{OH}$  (IV) in the presence of N-oxyl compds. An aq.  **$\text{NaClO}$**  soln. was added dropwise to a **mixt.** of IV,  **$\text{H}_2\text{O}$** ,  **$\text{KH}_2\text{PO}_4$** , 4-benzyloxy-2,2,6,6-tetramethylpiperidinyloxy,  **$\text{NaBr}$** , and  **$\text{CH}_2\text{Cl}_2$**  under vigorous stirring at 5-8.degree. over 100 min and the reaction mixt. was further stirred for 30 min to give 90.6% II. I was similarly prepd. in yield 88.4% from III.

IT **31645-22-4**

(prepn. of methylmethoxybutanal and hydroxymethylbutanal from the corresponding butanol derivs. using **hypochlorites** and N-oxyl compds.)

RN 31645-22-4 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(phenylmethoxy)- (9CI) (CA INDEX NAME)



IT **7681-52-9, Sodium hypochlorite**

(prepn. of methylmethoxybutanal and hydroxymethylbutanal from the corresponding butanol derivs. using **hypochlorites** and N-oxyl compds.)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

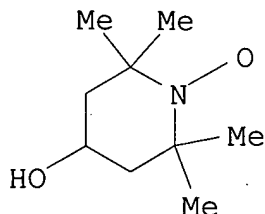
● Na

- IC ICM C07C047-19  
ICS B01J031-02; C07C045-30; C07C047-198  
ICA C07B061-00  
CC 23-14 (Aliphatic Compounds)  
IT 107-86-8P, Senecioaldehyde 541-47-9P, Senecioic acid  
(intermediates for; prepn. of methylmethoxybutanal and  
hydroxymethylbutanal from the corresponding butanol derivs. using  
**hypochlorites** and N-oxyl compds.)  
IT **31645-22-4**  
(prepn. of methylmethoxybutanal and hydroxymethylbutanal from the  
corresponding butanol derivs. using **hypochlorites** and  
N-oxyl compds.)  
IT 39850-35-6P, 3-Hydroxy-3-methylbutanal 181134-54-3P  
(prepn. of methylmethoxybutanal and hydroxymethylbutanal from the  
corresponding butanol derivs. using **hypochlorites** and  
N-oxyl compds.)  
IT 2568-33-4, 3-Hydroxy-3-methylbutanol **7681-52-9**, Sodium  
**hypochlorite** 56539-66-3, 3-Methyl-3-methoxybutanol  
(prepn. of methylmethoxybutanal and hydroxymethylbutanal from the  
corresponding butanol derivs. using **hypochlorites** and  
N-oxyl compds.)
- L62 ANSWER 34 OF 36 HCA COPYRIGHT 2005 ACS on STN  
117:153252 Preparation of alkoxyalkanoic acids by oxidation of  
alkoxyalkanols. Fried, Herbert Elliott (Shell Internationale  
Research Maatschappij B. V., Neth.). Eur. Pat. Appl. EP 488467 A2  
**19920603**, 8 pp. DESIGNATED STATES: R: BE, CH, DE, ES, FR,  
GB, IT, LI, NL. (English). CODEN: EPXXDW. APPLICATION: EP  
1991-203068 19911122. PRIORITY: US 1990-618205 19901126.
- AB Acids  $\text{RO}(\text{CH}_2\text{CHR}_1)_n\text{CH}_2\text{CO}_2\text{H}$  (R = C1-22 alkyl; R1 = H, Me; n = 1-12),  
useful in **detergent compns.**, are prepd. by  
oxidizing the corresponding alkoxyalkanols in the presence of  
solubilized stable free radical nitroxide such as  
2,2,6,6-tetramethyl-1-piperidinyloxy (I). A mixt. of 31 g Neodol  
23-3T (ethoxylated C12-13 alcs.), 0.5 g I, and 125 mL  $\text{Cl}_2\text{CH}_2$  was  
treated with 282 g 5.25% **NaOCl** soln. (contg. 2.6 g 25%  
 $\text{H}_2\text{SO}_4$  to give pH 8.6) to give >99% conversion of OH end groups with  
90% selectivity to  $\text{CO}_2\text{H}$  groups.  
IT **2226-96-2 2564-83-2 2896-70-0**  
**64486-65-3**

(catalysts, for oxidn. of ethoxylated alcs. to carboxylic acids)

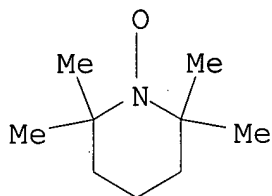
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



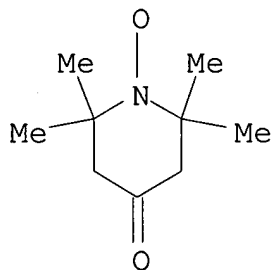
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



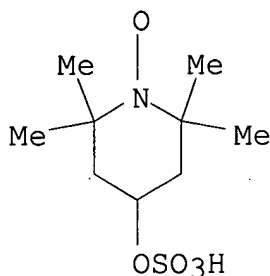
RN 2896-70-0 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



RN 64486-65-3 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(sulfooxy)- (9CI) (CA INDEX NAME)



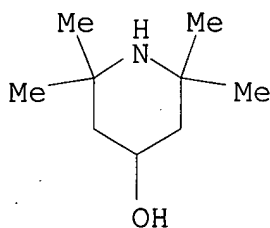
315204

- IC ICM C07C059-125  
ICS C11D001-06; C07C051-29
- CC 46-3 (Surface Active Agents and Detergents)  
Section cross-reference(s): 23
- IT **2226-96-2 2564-83-2 2896-70-0**  
**64486-65-3**  
(catalysts, for oxidn. of ethoxylated alcs. to carboxylic acids)
- IT **2226-96-2 2564-83-2 2896-70-0**  
**64486-65-3**  
(catalysts, for oxidn. of ethoxylated alcs. to carboxylic acids)
- L62 ANSWER 35 OF 36 HCA COPYRIGHT 2005 ACS on STN
- 111:235647 **Composition** for bleaching at low temperatures.  
Nishida, Shigeo; Tamura, Takamitsu; Toda, Toshimasa (Lion Corp., Japan; Sankyo Co., Ltd.). Eur. Pat. Appl. EP 315204 A2  
**19890510**, 25 pp. DESIGNATED STATES: R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1988-118440 19881104. PRIORITY: JP 1987-278848 19871104.
- AB The title **compn.**, useful in **laundry** detergents, contains H<sub>2</sub>O<sub>2</sub> and/or and H<sub>2</sub>O<sub>2</sub> addn. compd. (e.g., a percarbonate), a heterocyclic or a acyclic hindered amine or salt of the amine, and an active halogen-contg. compd. capable of forming a hypohalogenous acid ion in an aq. soln. The compn. gives good bleaching of stained fabrics at low temps. without discoloration of colored fabrics. Thus, a bleaching compn. contained Na percarbonate 10, 4-hydroxy-2,2,6,6-tetramethylpiperidine 10, and Chloramine T 10 mmol/L.
- IT **7681-52-9**  
(bleaching agents contg. peroxides and, for **laundering** at low temps.)
- RN 7681-52-9 HCA
- CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

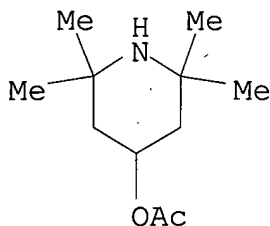
Cl-OH

● Na

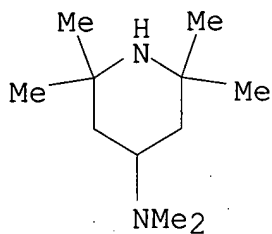
IT 2403-88-5, 4-Hydroxy-2,2,6,6-tetramethylpiperidine  
26275-85-4, 4-Acetoxy-2,2,6,6-tetramethylpiperidine  
32327-90-5, 4-(Dimethylamino)-2,2,6,6-Tetramethylpiperidine  
53825-32-4 62995-79-3, 4-Methylamino-2,2,6,6-  
tetramethylpiperidine 79316-86-2, 4-Hydroxy-2,2,6,6-  
tetramethylpiperidine hydrochloride 85181-21-1  
123989-41-3, 4-(N-Acetyl-N-methylamino)-2,2,6,6-  
tetramethylpiperidine  
(peroxide bleach **compns.** contg., for **laundering**  
at low temps.)  
RN 2403-88-5 HCA  
CN 4-Piperidinol, 2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME).



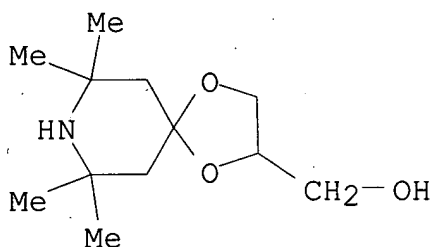
RN 26275-85-4 HCA  
CN 4-Piperidinol, 2,2,6,6-tetramethyl-, acetate (ester) (8CI, 9CI) (CA INDEX NAME)



RN 32327-90-5 HCA  
CN 4-Piperidinamine, N,N,2,2,6,6-hexamethyl- (9CI) (CA INDEX NAME)

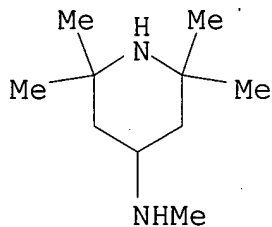


RN 53825-32-4 HCA

CN 1,4-Dioxo-8-azaspiro[4.5]decane-2-methanol, 7,7,9,9-tetramethyl-  
(9CI) (CA INDEX NAME)

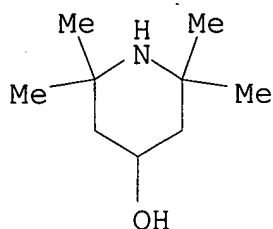
RN 62995-79-3 HCA

CN 4-Piperidinamine, N,2,2,6,6-pentamethyl- (9CI) (CA INDEX NAME)



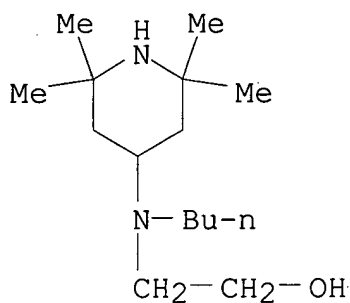
RN 79316-86-2 HCA

CN 4-Piperidinol, 2,2,6,6-tetramethyl-, hydrochloride (7CI, 9CI) (CA  
INDEX NAME)

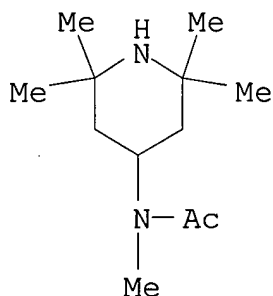


● HCl

RN 85181-21-1 HCA  
 CN Ethanol, 2-[butyl(2,2,6,6-tetramethyl-4-piperidiny)amino]- (9CI)  
 (CA INDEX NAME)



RN 123989-41-3 HCA  
 CN Acetamide, N-methyl-N-(2,2,6,6-tetramethyl-4-piperidiny)- (9CI)  
 (CA INDEX NAME)



IC ICM C11D003-395  
 CC 46-5 (Surface Active Agents and Detergents)  
 ST peroxide halogen amine bleaching; **laundry** detergent bleach  
 peroxide; discoloration prevention bleaching **laundering**;

- piperidine peroxide bleaching **laundrying**
- IT Amines, uses and miscellaneous  
Halogen compounds  
(bleaching agents contg. peroxides and, for **laundrying**  
at low temps.)
- IT Discoloration prevention  
(in bleaching of colored clothings during **laundrying**)
- IT Bleaching agents  
(peroxides contg. amines and halogen compds., for  
**laundrying** at low temps.)
- IT Detergents  
(**laundry**, low-temp., contg. peroxide bleach active at)
- IT 79-15-2, N-Bromoacetamide 80-13-7, Halazone 87-90-1,  
Trichloroisocyanuric acid 127-52-6, Chloramine B 127-65-1,  
Chloramine T 128-09-6, N-Chlorosuccinimide 473-29-0,  
N,N,-Dichlorobenzenesulfonamide 473-34-7, N,N-Dichloro-p-  
toluenesulfonamide 579-11-3, N-Chloroacetanilide 2782-57-2,  
Dichloroisocyanuric acid 2893-78-9, Sodium dichloroisocyanurate  
**7681-52-9** 13057-78-8, Monochloroisocyanuric acid  
14070-51-0, N-Chlorosaccharin 16844-21-6, Ethyl N-chlorocarbamate  
17172-27-9, N-Chlorosulfamic acid 67700-35-0, Sodium  
N-chloro-N-cyclohexylsulfonamide 98532-18-4, N-  
Chloromethanesulfonamide 123900-17-4, N,N-Dichlorosulfamoylbenzoic  
acid 123989-42-4, N-Chlorohippuric acid 123989-43-5,  
N-Chloro-N-ethyl-o-carbobenzamide 123989-44-6,  
N-Chloro-o-carbobenzamide 123989-45-7, N-Chloro-N-methyl-o-  
carbobenzamide  
(bleaching agents contg. peroxides and, for **laundrying**  
at low temps.)
- IT 10332-33-9, Sodium perborate monohydrate 15630-89-4, Sodium  
percarbonate  
(bleaching agents contg., for **laundrying** at low temps.)
- IT 75-64-9, uses and miscellaneous **2403-88-5**,  
4-Hydroxy-2,2,6,6-tetramethylpiperidine 4620-70-6,  
2-(t-Butylamino)ethanol 22741-52-2, 3-t-Butylamino-1,2-propanediol  
**26275-85-4**, 4-Acetoxy-2,2,6,6-tetramethylpiperidine  
**32327-90-5**, 4-(Dimethylamino)-2,2,6,6-Tetramethylpiperidine  
**53825-32-4** **62995-79-3**, 4-Methylamino-2,2,6,6-  
tetramethylpiperidine **79316-86-2**, 4-Hydroxy-2,2,6,6-  
tetramethylpiperidine hydrochloride **85181-21-1**  
**123989-41-3**, 4-(N-Acetyl-N-methylamino)-2,2,6,6-  
tetramethylpiperidine  
(peroxide bleach **compns.** contg., for **laundrying**  
at low temps.)



Chemical Industry Co., Ltd.; Sankyo Co., Ltd.). Ger. Offen. DE 1928915 **19691211**, 21 pp. (German). CODEN: GWXXBX.  
APPLICATION: DE 1969-1928915 19690606.

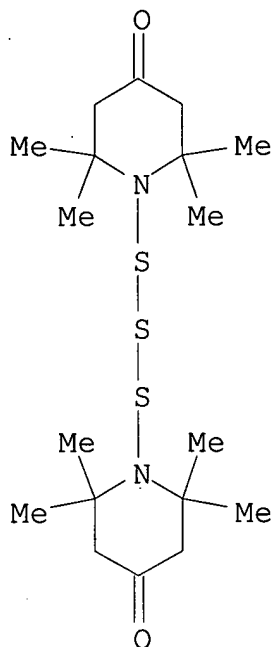
AB Stabilized polyurethane elastomeric fibers and yarns with excellent stability toward heat, light, and Cl-contg. bleaches were obtained by incorporating 0.6% piperidino sulfides and possibly substituted phenols into the fibers or yarns. Thus, 100 g poly(ethylene adipate) of mol. wt. 1250 was treated with 32.0 g 4,4'-diphenylmethane diisocyanate at 95.degree. and refluxed 90 min to yield an NCO-terminated polymer which was dissolved in 150 g MeCONMe<sub>2</sub> and treated with H<sub>2</sub>N(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub> 4.2, water 0.1, and AcNMe<sub>2</sub> 100 g. The resulting mixt. was treated with 0.6% (based on polymer) bis(2,2,6,6-tetramethylpiperidino) disulfide in 15 g MeCONMe<sub>2</sub> and the soln. was spun into yarn at 320 m/min. The fiber had strength 0.79 g/denier, and elongation 810%. The fiber also retained 83.0% strength after 15 hr in uv light and 88.0% strength after 24 hr in a 0.5% aq. **NaClO** soln. at 50.degree. while a control retained only 28.8 and 30.8%, resp. Similar stability improvements were obtained by adding 0.6% bis(4-oxo-2,2,6,6-tetramethylpiperidino) trisulfide, bis(2,2,6,6-tetra-methylpiperidino) disulfide, bis(2,2,6,6-tetramethylpiperidino) trisulfide, bis(2,2-dimethyl-4-oxo-6-cyclohexylpiperidino) disulfide, bis(2,2-dimethyl-6-phenylpiperidino) disulfide, bis(2,2,6-trimethyl-6-phenyl-4-oxopiperidino) disulfide, 1,1'-bis(1-aza-2,2-dimethyl-4-oxospiro[5.5]undecyl) trisulfide, 1,1-bis(1-aza-2,2-dimethyl-7-methylspiro[5.5]undecyl) disulfide, bis(4-hydroxy-2,2,6,6-tetramethylpiperidino) disulfide, bis(4-benzoyloxy-2,2,6,6-tetramethylpiperidino) tetrasulfide, bis(4-oxo-2,2,6,6-tetramethylpiperidino) disulfide, or bis[4-(N-phenylcarbamoxyloxy)-2,2,6,6-tetramethylpiperidino] disulfide, or by addn. of 0.3% of the piperidino sulfides and 0.3% 4-methyl-2,6-di-tert-butylphenol, 2-tert-butyl-4-methoxyphenol, 1,1-bis(2-methyl-4-hydroxy-5-tertbutylphenyl)butane, bis-(2-methyl-4-hydroxy-5-tert-butylphenyl)sulfide, 1,1,3-tris-(2-methyl-4-hydroxy-5-tert-butylphenyl)butane, bisphenol A, 1,1-bis(4-hydroxyphenyl)cyclohexane.

IT **14045-12-6 14045-39-7 14045-40-0**  
**24415-51-8 24415-56-3 24415-57-4**  
**24466-07-7**

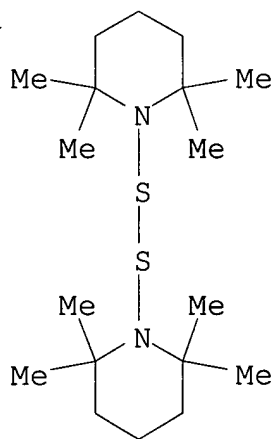
(stabilizer, for urethane rubbers)

RN 14045-12-6 HCA

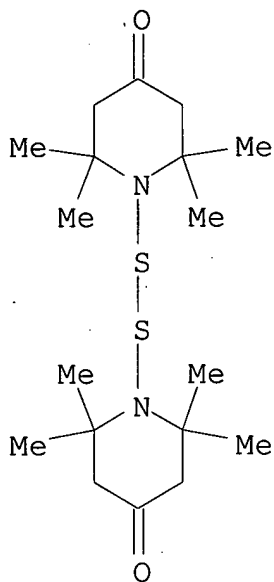
CN 4-Piperidinone, 1,1'-trithiobis[2,2,6,6-tetramethyl- (9CI) (CA  
INDEX NAME)



RN 14045-39-7 HCA  
CN Piperidine, 1,1'-dithiobis[2,2,6,6-tetramethyl- (8CI, 9CI) (CA  
INDEX NAME)

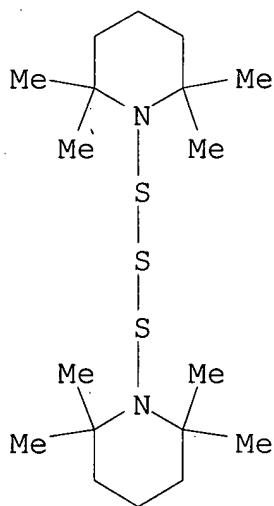


RN 14045-40-0 HCA  
CN 4-Piperidinone, 1,1'-dithiobis[2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



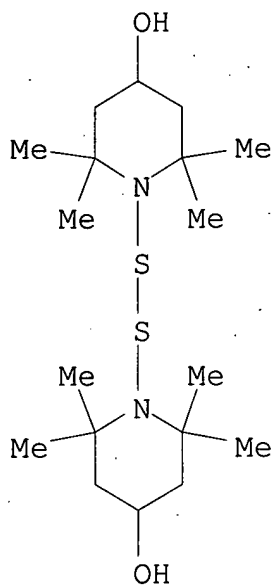
RN 24415-51-8 HCA

CN Piperidine, 1,1'-trithiobis[2,2,6,6-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



RN 24415-56-3 HCA

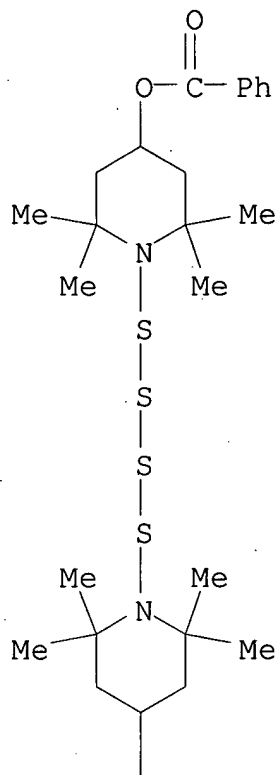
CN 4-Piperidinol, 1,1'-dithiobis[2,2,6,6-tetramethyl- (8CI) (CA INDEX NAME)



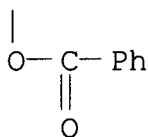
RN 24415-57-4 HCA

CN 4-Piperidinol, 1,1'-tetrathio-bis[2,2,6,6-tetramethyl-, dibenzoate  
(ester) (8CI) (CA INDEX NAME)

PAGE 1-A

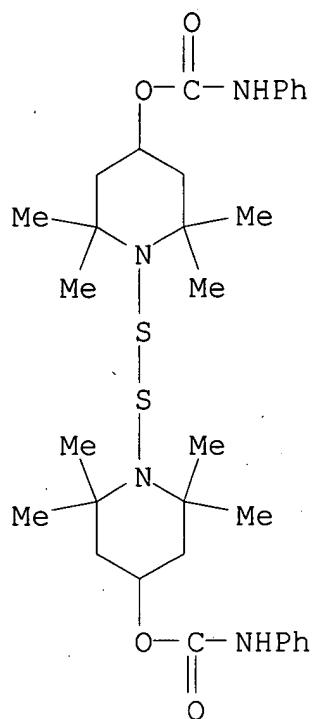


PAGE 2-A



RN 24466-07-7 HCA

CN 4-Piperidinol, 1,1'-dithiobis[2,2,6,6-tetramethyl-, dicarbanilate  
(ester) (8CI) (CA INDEX NAME)



IC C08G  
 CC 38 (Elastomers, Including Natural Rubber)  
 IT 80-05-7, uses and miscellaneous 85-60-9 96-69-5 121-00-6  
 128-37-0 843-55-0 1843-03-4 **14045-12-6**  
**14045-39-7 14045-40-0 24415-51-8**  
 24415-52-9 24415-53-0 24415-54-1 **24415-56-3**  
**24415-57-4 24466-07-7** 24511-42-0 26204-73-9  
 (stabilizer, for urethane rubbers)

=> d 163 1-14 cbib abs hitstr hitind

L63 ANSWER 1 OF 14 HCA COPYRIGHT 2005 ACS on STN

138:326617 Process for preparing medical absorbable regenerated oxycellulose as styptic material. Liang, Borun; Ma, Jinghong; Sun, Bin; Wang, Qingrui (Donghua Univ., Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1338475 A **20020306**, 8 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2001-126953 20011008.

AB The medical absorbable regenerated oxycellulose as styptic material is prep'd. by oxidizing of regenerated oxycellulose with an oxidizing system under certain conditions, then acid treating and ionization **stabilizing**, where the oxidizing agent is nitroso onium salt ion obtained from oxidizing of nitrosyl radical with enzyme,

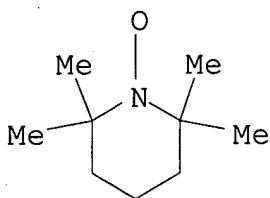
**hypochlorite** and its salt,  $\text{Cu}_2\text{O} + \text{O}_2$ ,  $\text{Cl}_2$  or  $\text{NO}_x$ , and the oxidizing system is TEMPO (2,2,6,6-tetramethylpiperidine oxide radical)-NaBr-**NaClO**, in which the amt. of TEMPO is 0.1-8.0% (based on cellulose feedstock), NaBr 5.0-80.0%, and **NaClO** 30-80 mL added in batches.

IT **2564-83-2**, TEMPO **7681-52-9**, Sodium **hypochlorite**

(process for prepg. medical absorbable regenerated oxycellulose as styptic material)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08B015-00

ICS A61L017-10; A61L015-28

CC 63-7 (Pharmaceuticals)

IT **2564-83-2**, TEMPO 7647-15-6, Sodium bromide (NaBr),

biological studies **7681-52-9**, Sodium **hypochlorite**

9004-34-6D, Cellulose, oxidized

(process for prepg. medical absorbable regenerated oxycellulose as styptic material)

L63 ANSWER 2 OF 14 HCA COPYRIGHT 2005 ACS on STN

138:172129 Making carboxylated cellulose fibers and paper products.

Jewell, Richard A.; Komen, Joseph Lincoln; Su, Bing; Weerawarna, S. Ananda; Li, Yong (Weyerhaeuser Company, USA). U.S. US 6524348 B1 20030225, 23 pp., Cont.-in-part of U.S. 6,379,494. (English).

CODEN: USXXAM. APPLICATION: US 2000-641276 20000817. PRIORITY: US 1999-272137 19990319; US 1999-418909 19991015.

AB The title method of making carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed comprises oxidn.

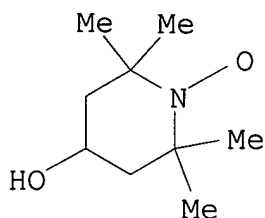
and **stabilized** stages. The title method involves the use of cyclic nitroxide free radical compds. as a primary oxidant and a hypohalite salt as a secondary oxidant in an aq. environment. Preferably the oxidized cellulose is then **stabilized** against D.P. loss in alk. environments and color reversion with a reducing agent such as Na borohydride. Alternatively it may be treated with an tertiary oxidant such as Na chlorite. The method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled fiber. It does not require high .alpha.-cellulose fiber but is suitable for regular market pulps.

IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO  
 2564-87-6 2896-70-0, 4-Oxo-TEMPO  
 14691-88-4, 4-Amino-TEMPO 14691-89-5  
 31645-22-4 95407-69-5, 4-Methoxy-TEMPO  
 98254-32-1 154186-17-1

(cellulose fiber treated with; making carboxylated cellulose fibers for papermaking)

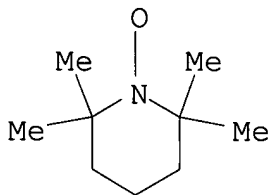
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

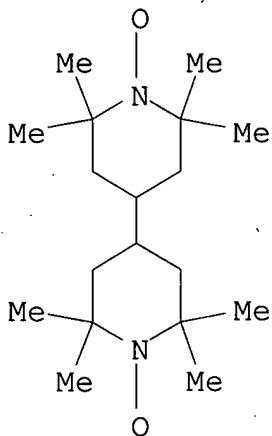


RN 2564-87-6 HCA

CN [4,4'-Bipiperidine]-1,1'-diylbis(oxy), 2,2,2',2',6,6,6',6'-

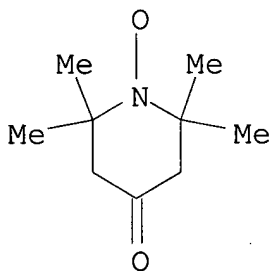


octamethyl- (9CI) (CA INDEX NAME)



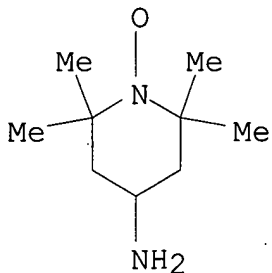
RN 2896-70-0 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



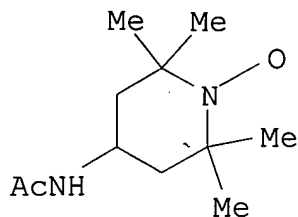
RN 14691-88-4 HCA

CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

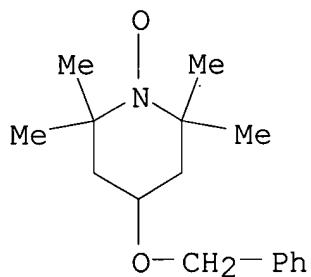


RN 14691-89-5 HCA

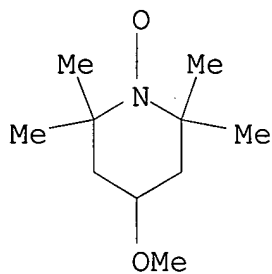
CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



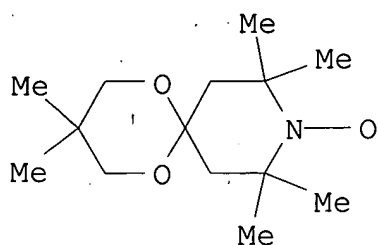
RN 31645-22-4 HCA  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(phenylmethoxy)- (9CI) (CA INDEX NAME)



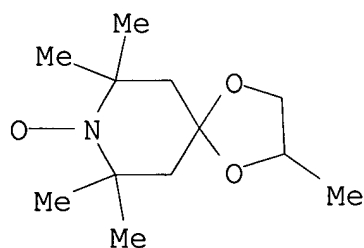
RN 95407-69-5 HCA  
 CN 1-Piperidinyloxy, 4-methoxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 98254-32-1 HCA  
 CN 1,5-Dioxa-9-azaspiro[5.5]undec-9-yloxy, 3,3,8,8,10,10-hexamethyl- (9CI) (CA INDEX NAME)



RN 154186-17-1 HCA  
 CN 1,4-Dioxo-8-azaspiro[4.5]dec-8-yloxy, 2,7,7,9,9-pentamethyl- (9CI)  
 (CA INDEX NAME)

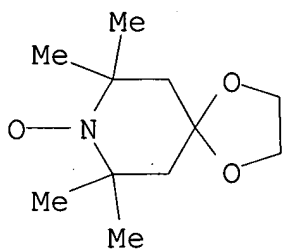


IT **7681-52-9, Sodium hypochlorite**  
 (cellulose fiber treated with; making carboxylated cellulose  
 fibers for papermaking)  
 RN 7681-52-9 HCA  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

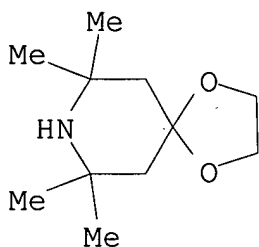
Cl-OH

● Na

IT **150980-92-0P**  
 (cellulose fiber treated with; prepn. of nitroxide free radical  
 for making carboxylated cellulose fibers for papermaking)  
 RN 150980-92-0 HCA  
 CN 1,4-Dioxo-8-azaspiro[4.5]dec-8-yloxy, 7,7,9,9-tetramethyl- (9CI)  
 (CA INDEX NAME)

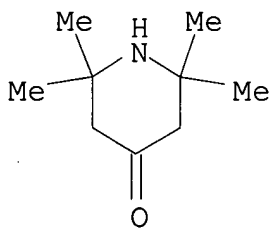
IT **36793-27-8P**(prepn. of nitroxide free radical for making carboxylated  
cellulose fibers for papermaking)

RN 36793-27-8 HCA

CN 1,4-Dioxaspiro[4.5]undecane, 7,7,9,9-tetramethyl- (7CI, 9CI)  
(CA INDEX NAME)IT **826-36-8**, 2,2,6,6-Tetramethyl-4-piperidone(prepn. of nitroxide free radical for making carboxylated  
cellulose fibers for papermaking)

RN 826-36-8 HCA

CN 4-Piperidinone, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM D06M023-00

ICS D21C009-00; D21H011-20

INCL 008116100; 008181000; 162009000

CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

ST carboxylated cellulose fiber oxidn **stabilization**; paper  
pulp carboxylated cellulose fiber

IT Carboxyl group

## Paper

**Stabilizing agents**

(making carboxylated cellulose fibers for papermaking)

- IT **2226-96-2**, 4-Hydroxy-TEMPO **2564-83-2**, TEMPO  
**2564-87-6** **2896-70-0**, 4-Oxo-TEMPO 3229-53-6  
 3264-93-5 **14691-88-4**, 4-Amino-TEMPO **14691-89-5**  
**31645-22-4** **95407-69-5**, 4-Methoxy-TEMPO  
**98254-32-1** **154186-17-1** 184160-78-9  
 (cellulose fiber treated with; making carboxylated cellulose fibers for papermaking)
- IT 7647-15-6, Sodium bromide, uses **7681-52-9**, Sodium **hypochlorite** 7722-84-1, Hydrogen peroxide, uses 7726-95-6, Bromine, uses 7738-94-5, Chromic acid (H<sub>2</sub>CrO<sub>4</sub>) 7758-19-2, Sodium chlorite 10049-04-4, Chlorine dioxide 16940-66-2, Sodium borohydride 20667-12-3, Silver oxide 335133-08-9, Stabrex ST 70  
 (cellulose fiber treated with; making carboxylated cellulose fibers for papermaking)
- IT **150980-92-0P**  
 (cellulose fiber treated with; prepn. of nitroxide free radical for making carboxylated cellulose fibers for papermaking)
- IT **36793-27-8P**  
 (prepn. of nitroxide free radical for making carboxylated cellulose fibers for papermaking)
- IT 104-15-4, p-Toluenesulfonic acid, reactions 107-21-1, Ethylene glycol, reactions **826-36-8**, 2,2,6,6-Tetramethyl-4-piperidone  
 (prepn. of nitroxide free radical for making carboxylated cellulose fibers for papermaking)

L63 ANSWER 3 OF 14 HCA COPYRIGHT 2005 ACS on STN

138:14801 **Hypochlorite**-free method for preparation of

**stable** carboxylated carbohydrate products. Komen, Joseph L.; Weerawarna, Ananda S.; Jewell, Richard A. (Weyerhaeuser Company, USA). Eur. Pat. Appl. EP 1264845 A2 **20021211**, 20 pp.  
 DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR.  
 (English). CODEN: EPXXDW. APPLICATION: EP 2002-253744 20020529.  
 PRIORITY: US 2001-875177 20010606.

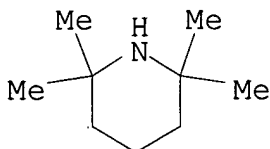
- AB A method of making a carboxylated carbohydrate is disclosed, with cellulose being a preferred carbohydrate material. Carboxylated cellulose fibers, whose fiber strength and d.p. is not significantly sacrificed, can be produced. The method involves the use of a catalytic amt. of a hindered cyclic oxammonium compd. as a primary oxidant and ClO<sub>2</sub> as a secondary oxidant in an aq. environment. The oxammonium compds. may be formed in situ from their corresponding amine, hydroxylamine, or nitroxyl compds. The oxidized cellulose may be **stabilized** against d.p. loss and color reversion by

further treatment with an oxidant, e.g. NaClO<sub>2</sub> or a ClO<sub>2</sub>/H<sub>2</sub>O<sub>2</sub> mixt. Alternatively, it may be treated with a reducing agent, e.g. NaBH<sub>4</sub>. In the case of cellulose, the method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled cellulose pulp fibers. It does not require high .alpha.-cellulose fiber, but is suitable for regular market pulps.

IT **768-66-1D**, 2,2,6,6-Tetramethylpiperidine, reaction products with chlorine dioxide **2564-83-2**, Tempo **36793-28-9D**, reaction products with chlorine dioxide **53825-32-4D**, 7,7,9,9-Tetramethyl-1,4-dioxo-8-azaspiro[4.5]decane-2-methanol, reaction products with chlorine dioxide (oxidizing agent; **hypochlorite**-free catalytic oxidn. for prepn. of **stable** carboxylated cellulose fibers for pulping and papermaking)

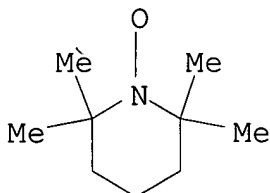
RN 768-66-1 HCA

CN Piperidine, 2,2,6,6-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



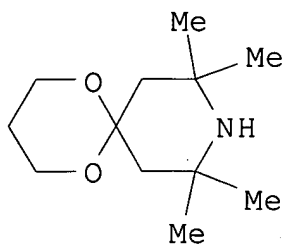
RN 2564-83-2 HCA

CN 1-Piperidinylloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



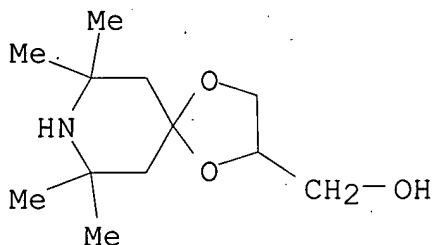
RN 36793-28-9 HCA

CN 1,5-Dioxo-9-azaspiro[5.5]undecane, 8,8,10,10-tetramethyl- (9CI) (CA INDEX NAME)



RN 53825-32-4 HCA

CN 1,4-Dioxo-8-azaspiro[4.5]decane-2-methanol, 7,7,9,9-tetramethyl-  
(9CI) (CA INDEX NAME)



IC ICM C08B015-04

ICS C08B031-18

CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)

ST **hypochlorite** free prepn **stable** carboxylated  
cellulose fiber pulping papermaking

IT Cellulose pulp

(carboxylated; **hypochlorite**-free catalytic oxidn. for  
prepn. of **stable** carboxylated cellulose fibers for  
pulping and papermaking)

IT Oxidation

Paper

(**hypochlorite**-free catalytic oxidn. for prepn. of  
**stable** carboxylated cellulose fibers for pulping and  
papermaking)

IT 9004-34-6D, Cellulose, carboxylated 9005-25-8D, Starch,  
carboxylated

(fibers; **hypochlorite**-free catalytic oxidn. for prepn.  
of **stable** carboxylated cellulose fibers for pulping and  
papermaking)

IT **768-66-1D**, 2,2,6,6-Tetramethylpiperidine, reaction products  
with chlorine dioxide **2564-83-2**, Tempo 7722-84-1,  
Hydrogen peroxide, uses 7758-19-2 10049-04-4D, Chlorine dioxide,  
reaction products with triacetone amine ketals **36793-28-9D**  
, reaction products with chlorine dioxide **53825-32-4D**,  
7,7,9,9-Tetramethyl-1,4-dioxo-8-azaspiro[4.5]decane-2-methanol,

reaction products with chlorine dioxide

(oxidizing agent; **hypochlorite**-free catalytic oxidn.

for prepn. of **stable** carboxylated cellulose fibers for  
pulping and papermaking)

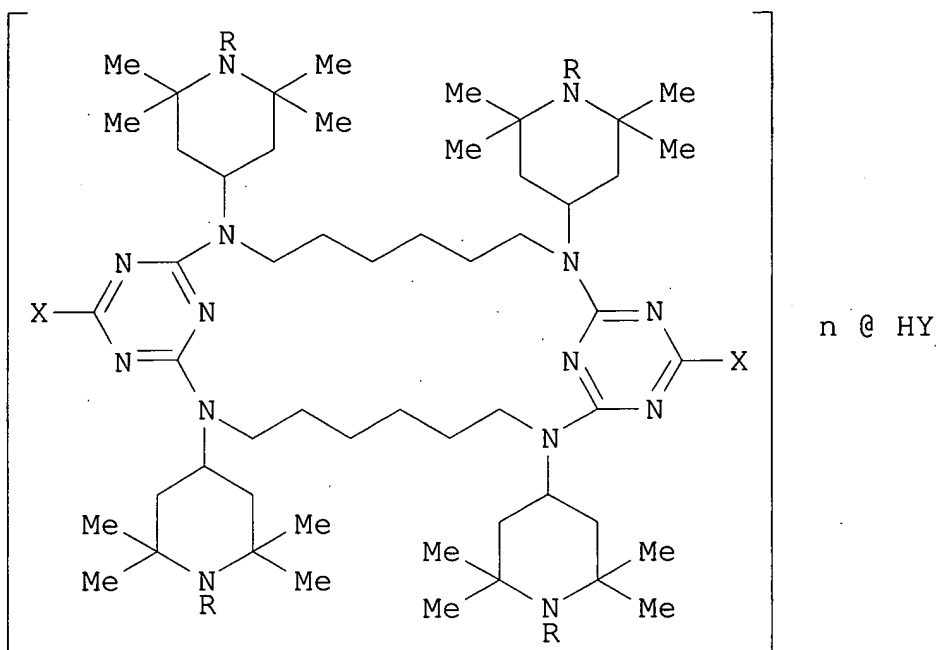
IT **768-66-1D**, 2,2,6,6-Tetramethylpiperidine, reaction products  
with chlorine dioxide **2564-83-2**, Tempo 7722-84-1,  
Hydrogen peroxide, uses 7758-19-2 10049-04-4D, Chlorine dioxide,  
reaction products with triacetone amine ketals **36793-28-9D**  
, reaction products with chlorine dioxide **53825-32-4D**,  
7,7,9,9-Tetramethyl-1,4-dioxo-8-azaspiro[4.5]decane-2-methanol,  
reaction products with chlorine dioxide  
(oxidizing agent; **hypochlorite**-free catalytic oxidn.  
for prepn. of **stable** carboxylated cellulose fibers for  
pulping and papermaking)

L63 ANSWER 4 OF 14 HCA COPYRIGHT 2005 ACS on STN

137:126809 **Stable** free nitroxyl radicals as oxidation  
catalysts and process for oxidation. Zedda, Alessandro; Sala,  
Massimiliano; Schneider, Armin (Ciba Specialty Chemicals Holding  
Inc., Switz.; Ciba Specialty Chemicals S.P.A.). PCT Int. Appl. WO  
2002058844 A1 **20020801**, 16 pp. DESIGNATED STATES: W: AE,  
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR,  
CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,  
ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD,  
SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU,  
ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ,  
CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU,  
MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN:  
PIXXD2. APPLICATION: WO 2002-EP340 20020115. PRIORITY: EP  
2001-810059 20010123.

GI





I

AB Invention relates to **stable** free nitroxyl radicals of formula (I) at least one of the substituents R = O and the others are H or OH; X = NR<sub>1</sub>R<sub>2</sub>, wherein R<sub>1</sub> and R<sub>2</sub> = H, C<sub>1</sub>-18alkyl or together with the N atom to which they are bound from a 5 or 6 membered ring which may be further interrupted by an O atom, HY = an org. or inorg. acid, and n = 0 or 1-4. Further subjects of the invention are an oxidn. process for alcs. to aldehydes or ketones or to carboxylic acids in the presence of a compds. I which are used as oxidn. catalysts. Thus, 50 g Chimassorb 966, 250 mL toluene, 42 g potassium carbonate, and 72.5 g peracetic acid in acetic acid were allowed to stand for 2 h at 5-10.degree., 10 g potassium carbonate was added, the mixt. was agitated at 25-30.degree. for 2 h, and it was agitated at 50.degree. for 1 h to give a rose-colored product showing m.p. 267-270.degree. and nitroxy yield by ESR 95%, 0.072 g of which was mixed with 2.5 g 2-octanol, 2.8 g KHCO<sub>2</sub>, and 10 mL dichloromethane at 10-15.degree., and 13.8 g 10.5% NaOCl aq. soln. was added to give 2-octanone.

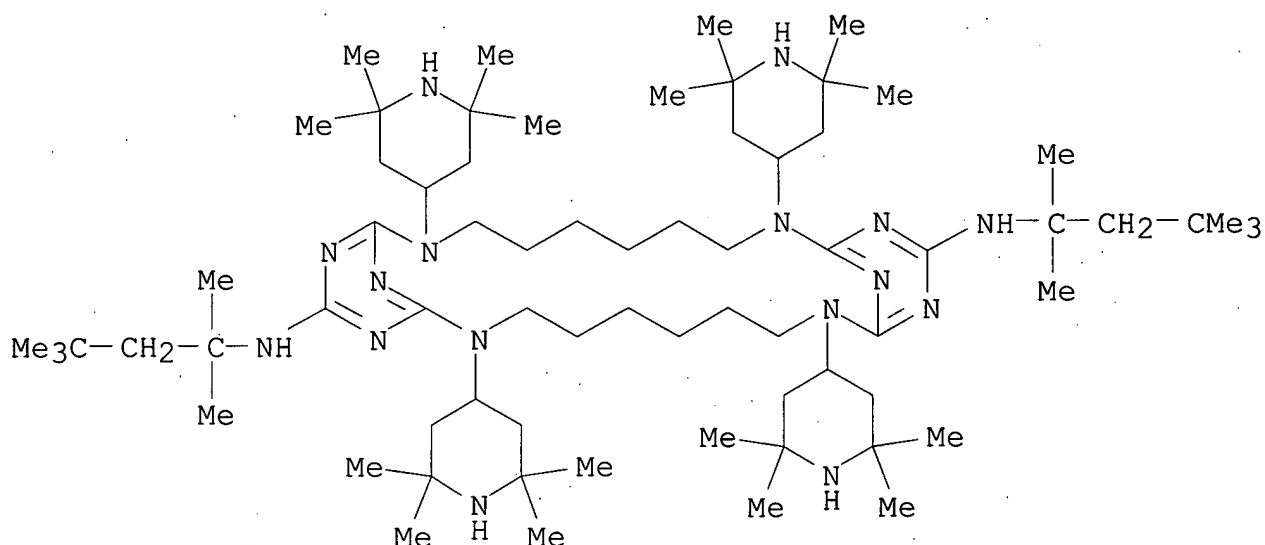
IT **86168-95-8DP**, Chimassorb 966, reaction products with peracetic acid

(Chimassorb 966; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)

RN 86168-95-8 HCA

CN 2,9,11,13,15,22,24,26,27,28-Decaazatricyclo[21.3.1.110,14]octacos-1(27),10,12,14(28),23,25-hexaene-12,25-diamine, N,N'-bis(1,1,3,3-tetramethylbutyl)-2,9,15,22-tetrakis(2,2,6,6-tetramethyl-4-

piperidiny)- (9CI) (CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite 7778-66-7**  
 , Potassium **hypochlorite 13840-33-0**, Lithium  
**hypochlorite**  
 (oxidizing agent; **stable** free nitroxyl radicals as  
 oxidn. catalysts and process for oxidn.)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

RN 7778-66-7 HCA

CN Hypochlorous acid, potassium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● K

RN 13840-33-0 HCA

CN Hypochlorous acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

## ● Li

- IC ICM B01J031-02  
ICS C07C045-29; C07C045-30; C07C051-16; C07C051-29; C08F002-38;  
C07C007-20; C08K005-3492; C07D211-94
- CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
- IT Hypohalites  
(alkali salts, oxidizing agents; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT Halogen compounds  
(halites, oxidizing agent; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT Halides  
(oxidizing agent; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT Oxidation catalysts  
(**stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT Aldehydes, preparation  
Carboxylic acids, preparation  
Ketones, preparation  
Nitroxides  
(**stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT Alcohols, reactions  
(**stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT **86168-95-8DP**, Chimassorb 966, reaction products with peracetic acid  
(Chimassorb 966; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT **7681-52-9**, Sodium **hypochlorite** 7722-84-1, Hydrogen peroxide, reactions **7778-66-7**, Potassium **hypochlorite** 13824-95-8, Hypobromous acid, lithium salt 13824-96-9, Sodium hypobromite 13824-97-0, Potassium hypobromite **13840-33-0**, Lithium **hypochlorite**  
(oxidizing agent; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT 75-09-2, Dichloromethane, uses 108-88-3, Toluene, uses (solvent; **stable** free nitroxyl radicals as oxidn. catalysts and process for oxidn.)
- IT 79-21-0DP, Peracetic acid, reaction products with Chimassorb 966  
(**stable** free nitroxyl radicals as oxidn. catalysts and

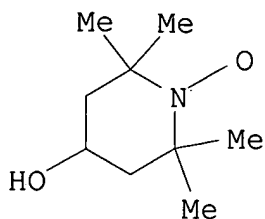
- process for oxidn.)
- IT 111-13-7P, 2-Octanone 496-03-7P, 2-Ethyl-3-hydroxyhexanal  
5155-45-3P 16024-56-9P  
(**stable** free nitroxyl radicals as oxidn. catalysts and  
process for oxidn.)
- IT 94-96-2, 2-Ethyl-1,3-hexanediol 97-30-3, Methyl-.alpha.-D-  
glucopyranoside 111-77-3, Diethyleneglycol monomethylether  
123-96-6, 2-Octanol  
(**stable** free nitroxyl radicals as oxidn. catalysts and  
process for oxidn.)

L63 ANSWER 5 OF 14 HCA COPYRIGHT 2005 ACS on STN

137:124781 Recovery of nitroxyl radicals from oxidation reactions.

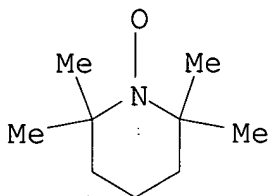
Thornton, Jeff; Besemer, Arie; Schraven, Bas (SCA Hygiene Products  
AB, Swed.). PCT Int. Appl. WO 2002059064 A1 **20020801**, 22  
pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES,  
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO,  
NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,  
TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ,  
TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR,  
GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
(English). CODEN: PIXXD2. APPLICATION: WO 2001-SE2632 20011129.  
PRIORITY: SE 2001-210 20010126.

- AB **Stable** nitroxyl radicals, such as TEMPO and its derivs.,  
used as catalysts in oxidn. reactions are recovered from oxidn.  
reactions by hydrophobic interactions with polymers, such as XAD  
resins, .beta.-cyclodextrin or silica gel. Thus, potato starch in  
water was treated with 4-acetamido-TEMPO and **NaOCl** at pH  
8.5-9.5. The reaction mixt. was run through a column of silica gel,  
eluted with water. The 6-carboxy starch was eluted first, followed  
by the 4-acetamido-TEMPO which could be recycled without loss of  
activity.
- IT **2226-96-2P**, 4-Hydroxy TEMPO **2564-83-2P**, TEMPO  
**6599-87-7P**, 1-Piperidinyloxy, 4-acetyloxy-2,2,6,6-  
tetramethyl- **14691-89-5P**, 4-Acetamido TEMPO  
(recovery of nitroxyl radicals from oxidn. reactions)
- RN 2226-96-2 HCA
- CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



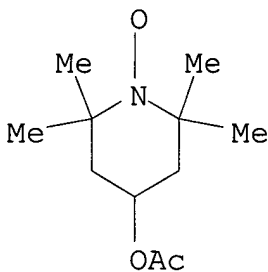
RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



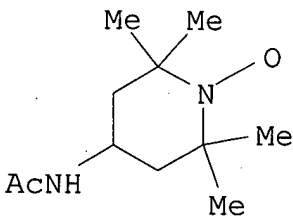
RN 6599-87-7 HCA

CN 1-Piperidinyloxy, 4-(acetyloxy)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



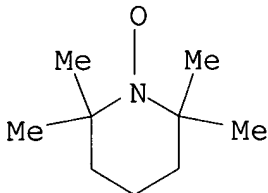
RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IC ICM C07B063-00  
ICS C07D211-94; C07M003-00
- CC 21-2 (General Organic Chemistry)
- IT **2226-96-2P**, 4-Hydroxy TEMPO **2564-83-2P**, TEMPO  
**6599-87-7P**, 1-Piperidinyloxy, 4-acetyloxy-2,2,6,6-tetramethyl- **14691-89-5P**, 4-Acetamido TEMPO  
(recovery of nitroxyl radicals from oxidn. reactions)
- L63 ANSWER 6 OF 14 HCA COPYRIGHT 2005 ACS on STN
- 136:342435 Method of making carboxylated cellulose fibers and products of the method. Jewell, Richard A.; Komen, Joseph Lincoln; Li, Yong; Su, Bing (Weyerhaeuser Company, USA). U.S. US 6379494 B1 **20020430**, 18 pp., Cont.-in-part of U.S. Ser. No. 272,137. (English). CODEN: USXXAM. APPLICATION: US 1999-418909 19991015. PRIORITY: US 1999-272137 19990319.
- AB The invention is directed to a method of making carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed. The method involves the use of TEMPO (2,2,6,6-tetramethylpiperidinyloxy free radical) as a primary oxidant and a hypohalite salt as a secondary oxidant in an aq. environment. Preferably the oxidized cellulose is then **stabilized** against D.P. loss in alk. environments and color reversion with a reducing agent such as sodium borohydride. Alternatively it may be treated with an oxidant such as sodium chlorite. The method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled fiber. It does not require high .alpha.-cellulose fiber but is suitable for regular market pulps.
- IT **7681-52-9**, Sodium **hypochlorite**  
(oxidant; method of making carboxylated cellulose fibers and products of method)
- RN 7681-52-9 HCA
- CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)
- Cl-OH
- Na
- IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidine-1-oxyl  
(oxidn. catalyst; method of making carboxylated cellulose fibers and products of method)

RN 2564-83-2 HCA  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM D21H011-20  
 ICS C21C004-00; D06M013-322  
 INCL 162009000  
 CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)  
 IT **7681-52-9**, Sodium **hypochlorite** 7758-19-2, Sodium  
 chlorite 335133-08-9, Stabrex ST 70  
 (oxidant; method of making carboxylated cellulose fibers and  
 products of method)  
 IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidine-1-oxyl  
 (oxidn. catalyst; method of making carboxylated cellulose fibers  
 and products of method)  
 IT **2564-83-2**, 2,2,6,6-Tetramethylpiperidine-1-oxyl  
 (oxidn. catalyst; method of making carboxylated cellulose fibers  
 and products of method)

L63 ANSWER 7 OF 14 HCA COPYRIGHT 2005 ACS on STN  
 134:312682 Method of making carboxylated cellulose fibers and products.  
 Jewell, Richard A.; Komen, Joseph Lincoln; Su, Bing; Weerawarna, S.  
 Ananda; Li, Yong (Weyerhaeuser Company, USA). PCT Int. Appl. WO  
 2001029309 A1 **20010426**, 52 pp. DESIGNATED STATES: W: AE,  
 AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU,  
 CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,  
 IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
 MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,  
 SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG,  
 KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE,  
 DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE,  
 SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO  
 2000-US27837 20001006. PRIORITY: US 1999-418909 19991015.

AB A method of making highly carboxylated cellulose fibers whose fiber  
 strength and d.p. is not significantly sacrificed comprises (1)  
 oxidizing the cellulose fiber (kraft pulp) with a cyclic nitroxide  
 free radical compd. as a primary oxidant and a hypohalite salt as a  
 secondary oxidant under aq. alk. conditions; and (2) treating the  
 oxidized cellulose against d.p. loss in aq. suspension with a  
**stabilizing** agent selected from the group consisting of  
 reducing agent and tertiary oxidizing agent. The product is esp.

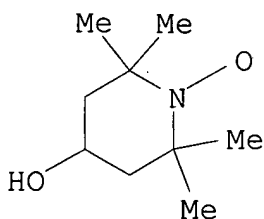
useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives, and it is also useful as an additive to recycled fiber to increase strength.

IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO  
 2564-87-6 2896-70-0, 4-Oxo-TEMPO  
 14691-88-4, 4-Amino-TEMPO 14691-89-5  
 31645-22-4 95407-69-5, 4-Methoxy-TEMPO  
 98254-32-1 154186-17-1

(cellulose fiber treated with; method of making carboxylated cellulose fibers and products for papermaking)

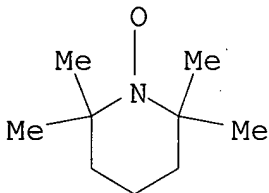
RN 2226-96-2 HCA

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2564-83-2 HCA

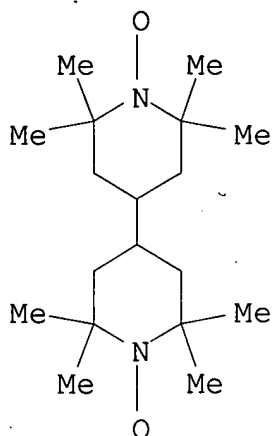
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2564-87-6 HCA

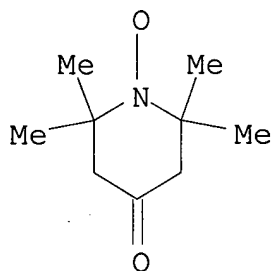
CN [4,4'-Bipiperidine]-1,1'-diylbis(oxy), 2,2,2',2',6,6,6',6'-octamethyl- (9CI) (CA INDEX NAME)





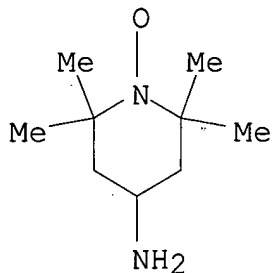
RN 2896-70-0 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



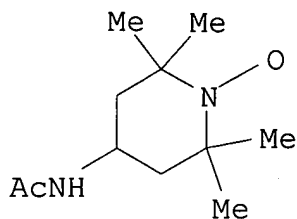
RN 14691-88-4 HCA

CN 1-Piperidinyloxy, 4-amino-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



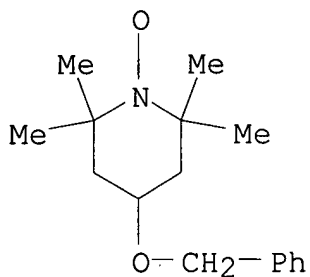
RN 14691-89-5 HCA

CN 1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



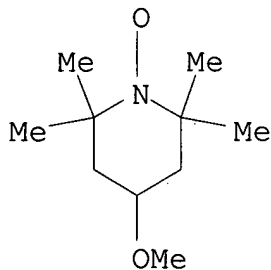
RN 31645-22-4 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-(phenylmethoxy)- (9CI) (CA INDEX NAME)



RN 95407-69-5 HCA

CN 1-Piperidinyloxy, 4-methoxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

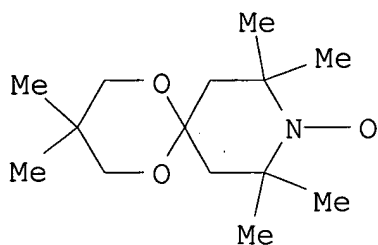


RN 98254-32-1 HCA

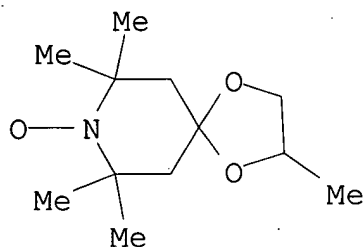
CN 1,5-Dioxa-9-azaspiro[5.5]undec-9-yloxy, 3,3,8,8,10,10-hexamethyl- (9CI) (CA INDEX NAME)

DEL COTTO 10/616,775

Page 96



RN 154186-17-1 HCA

CN 1,4-Dioxo-8-azaspiro[4.5]dec-8-yloxy, 2,7,7,9,9-pentamethyl- (9CI)  
(CA INDEX NAME)IT **7681-52-9, Sodium hypochlorite**(cellulose fiber treated with; method of making carboxylated  
cellulose fibers and products for papermaking)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

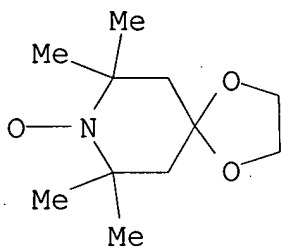
Cl-OH

● Na

IT **150980-92-0P**(cellulose fiber treated with; prepn. of nitroxide free radical  
for making carboxylated cellulose fibers and products for  
papermaking)

RN 150980-92-0 HCA

CN 1,4-Dioxo-8-azaspiro[4.5]dec-8-yloxy, 7,7,9,9-tetramethyl- (9CI)  
(CA INDEX NAME)

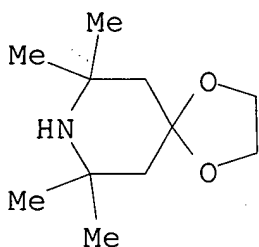


IT **36793-27-8P**

(prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)

RN 36793-27-8 HCA

CN 1,4-Dioxaspiro[4.5]undecane, 7,7,9,9-tetramethyl- (7CI, 9CI)  
(CA INDEX NAME)

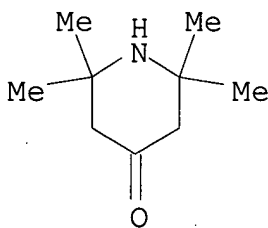


IT **826-36-8**, 2,2,6,6-Tetramethyl-4-piperidone

(prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)

RN 826-36-8 HCA

CN 4-Piperidinone, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM D21C009-00

ICS D21H011-20; C08B015-04

CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

ST carboxylated cellulose fiber oxidn **stabilization**; paper  
pulp carboxylated cellulose fiber

IT Carboxyl group  
Paper

**Stabilizing agents**

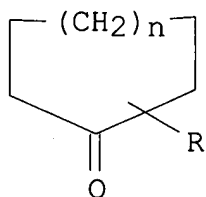
(method of making carboxylated cellulose fibers and products for papermaking)

- IT **2226-96-2**, 4-Hydroxy-TEMPO **2564-83-2**, TEMPO  
**2564-87-6** **2896-70-0**, 4-Oxo-TEMPO 3229-53-6  
 3264-93-5 **14691-88-4**, 4-Amino-TEMPO **14691-89-5**  
**31645-22-4** **95407-69-5**, 4-Methoxy-TEMPO  
**98254-32-1** **154186-17-1** 184160-78-9  
 (cellulose fiber treated with; method of making carboxylated cellulose fibers and products for papermaking)
- IT 7647-15-6, Sodium bromide, uses **7681-52-9**, Sodium hypochlorite 7722-84-1, Hydrogen peroxide, uses 7758-19-2, Sodium chlorite 10049-04-4, Chlorine dioxide 16940-66-2, Sodium borohydride 335133-08-9, Stabrex ST 70  
 (cellulose fiber treated with; method of making carboxylated cellulose fibers and products for papermaking)
- IT **150980-92-0P**  
 (cellulose fiber treated with; prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)
- IT **36793-27-8P**  
 (prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)
- IT 104-15-4, p-Toluenesulfonic acid, reactions 107-21-1, Ethylene glycol, reactions **826-36-8**, 2,2,6,6-Tetramethyl-4-piperidone  
 (prepn. of nitroxide free radical for making carboxylated cellulose fibers and products for papermaking)

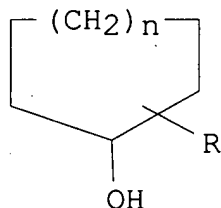
L63 ANSWER 8 OF 14 HCA COPYRIGHT 2005 ACS on STN

131:102049 Preparation of optically active cyclohexanones. Ono, Takae; Sato, Haruyo (Toray Industries, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 11199538 A2 **19990727** Heisei, 6 pp. (Japanese).  
 CODEN: JKXXAF. APPLICATION: JP 1998-5196 19980113.

GI



I



II

AB Title compds. I (R = C1-8 alkyl, C1-8 alkoxy; n = 0-3) having **stability** are prepd. by reaction of optical active alicyclic

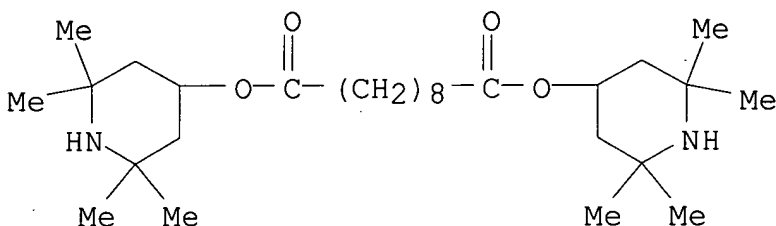
alcs. II (R = C1-8 alkyl, C1-8 alkoxy; R is bonded to C which is not connected with OH group) with hypohalous acid alkali metal salts or hypohalous acid alk. earth metal salts in acidic aq. solns. and purifn. by distn. in the presence of epoxy compds. or hindered amines. (S)-2-methoxycyclohexanol (13.0 g) was oxidized with **NaClO** in CH<sub>2</sub>Cl<sub>2</sub>-aq. H<sub>2</sub>SO<sub>4</sub> soln. at 20-25.degree. for 1.5 h, mixed with YD 128 (bisphenol A epoxy compd.) at 70.degree. for 2 h and distd. under reduced pressure to give 11.5 g (S)-2-methoxycyclohexanone with 99.1% purity and 99.7% e.e.

IT **52829-07-9**, Tinuvin 770

(prepn. of optically active alicyclic ketones by oxidn. of alicyclic alcs. with hypohalous acid salts and distn. with epoxy compds. or hindered amines)

RN 52829-07-9 HCA

CN Decanedioic acid, bis(2,2,6,6-tetramethyl-4-piperidiny) ester (9CI)  
(CA INDEX NAME)



IT **7681-52-9**, Sodium **hypochlorite**

(prepn. of optically active alicyclic ketones by oxidn. of alicyclic alcs. with hypohalous acid salts and distn. with epoxy compds. or hindered amines)

RN 7681-52-9 HCA

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C049-395

ICS C07B053-00; C07C045-29; C07C045-30; C07C045-82; C07C045-86;  
C07C049-403; C07C049-413; C07C049-517; C07M007-00

CC 24-5 (Alicyclic Compounds)

ST optically active alicyclic ketone prepn; alc alicyclic oxidn  
hypohalous acid salt; epoxy compd distn alicyclic ketone; hindered  
amine distn alicyclic ketone; methoxycyclohexanol oxidn sodium  
**hypochlorite**; methoxycyclohexanone prepn distn bisphenol A

- epoxy  
IT 7144-65-2, OPP-G 25068-38-6, YD 128 **52829-07-9**, Tinuvin  
770  
(prepn. of optically active alicyclic ketones by oxidn. of  
alicyclic alcs. with hypohalous acid salts and distn. with epoxy  
compds. or hindered amines)
- IT 2979-24-0, 2-Methoxycyclohexanol **7681-52-9**, Sodium  
**hypochlorite** 200804-48-4  
(prepn. of optically active alicyclic ketones by oxidn. of  
alicyclic alcs. with hypohalous acid salts and distn. with epoxy  
compds. or hindered amines)
- L63 ANSWER 9 OF 14 HCA COPYRIGHT 2005 ACS on STN  
130:197985 Application of **stable** nitroxyl radical reagents to  
cellulose modifications. Isogai Akira (Graduate School of  
Agricultural and Life Science, University of Tokyo, Bunkyo-ku,  
Yayoi, 113-8657, Japan). Cellulose Communications, 5(3), 136-141  
(Japanese) **1998**. CODEN: CCOMFD. ISSN: 1342-730X.  
Publisher: Serurosu Gakkai.
- AB A review with 25 refs. Recent reports concerning TEMPO-mediated  
oxidn. of alc. compds. were introduced briefly, and application of  
TEMPO-NaBr-**NaClO** oxidn. systems under aq. conditions to  
cellulosic materials was reviewed on the basis of the results  
obtained in our lab. When mercerized and regenerated celluloses  
were used as starting materials, water-sol. oxidized products were  
quant. obtained by the TEMPO-NaBr-**NaClO** oxidn. at pH  
10-11. <sup>13</sup>C-NMR anal. showed that the oxidized products had almost  
pure structures of .beta.-1,4-linked glucuronic acid sodium salt,  
i.e. cellouronic acid Na salt. On the other hand when native  
celluloses were oxidized, the products did not become water-sol.,  
owing to low degree of oxidn. Possibilities to utilize cellouronic  
acid and partly oxidized pulp fibers by the TEMPO-NaBr-**NaClO**  
system are discussed on the basis of their characteristics.
- IT **7681-52-9**, Sodium **hypochlorite**  
(application of TEMPO-NaBr-**NaClO** oxidn. systems to  
cellulose modifications)
- RN 7681-52-9 HCA  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

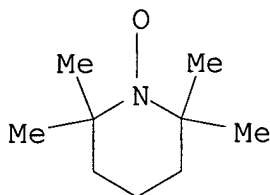
● Na

- IT **2564-83-2**, TEMPO  
(application of **stable** nitroxyl radical reagents to

cellulose modifications)

RN 2564-83-2 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 43-0 (Cellulose, Lignin, Paper, and Other Wood Products)

IT Oxidation

Oxidizing agents

(application of **stable** nitroxyl radical reagents to cellulose modifications)

IT Cellulose pulp

(kraft; application of **stable** nitroxyl radical reagents to cellulose modifications)IT 7647-15-6, Sodium bromide (NaBr), uses **7681-52-9**, Sodium **hypochlorite**(application of TEMPO-NaBr-**NaClO** oxidn. systems to cellulose modifications)IT **2564-83-2**, TEMPO(application of **stable** nitroxyl radical reagents to cellulose modifications)

IT 9004-34-6, Cellulose, reactions

(application of **stable** nitroxyl radical reagents to cellulose modifications)

IT 9004-34-6, Cellulose, reactions

(application of **stable** nitroxyl radical reagents to cellulose modifications)

L63 ANSWER 10 OF 14 HCA COPYRIGHT 2005 ACS on STN

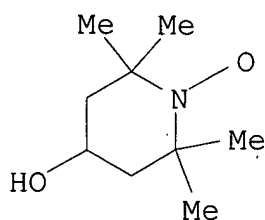
126:252694 Preparation of alkoxyalkanoic acids for anionic surfactants and emulsifying agents. Fried, Herbert E.; Singleton, David M. (Shell Oil Co., USA). U.S. US 5608107 A **19970304**, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1995-455369 19950531.

AB A process for prepg. an alkoxyalkanoic acid involves reacting the corresponding alkoxyalkanol with a resin-supported **stable** free radical nitroxide in the presence of a chlorine-contg. oxidant and a solvent at 0-35.degree. and thereafter sepg. out the alkoxyalkanoic acid. Neodol 23-3T (ethoxylated C12-13 alcs., 31.5 g) and 3 g reaction product of 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy and chloromethylated styrene-divinylbenzene copolymer in 100 mL CH<sub>2</sub>Cl<sub>2</sub> were added with 6 g Na bicarbonate and 282 g 5.25% aq. Na **hypochlorite** and kept



at 20.degree. overnight to give a corresponding carboxylic acid with 98% conversion.

- IT **2226-96-2D**, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy,  
reaction product with chloromethylated styrene-divinylbenzene  
copolymer  
(prepn. of alkoxyalkanoic acids for anionic surfactants and  
emulsifying agents)
- RN 2226-96-2 HCA
- CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



- IT **7681-52-9**, Sodium **hypochlorite**  
(prepn. of alkoxyalkanoic acids for anionic surfactants and  
emulsifying agents)
- RN 7681-52-9 HCA
- CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

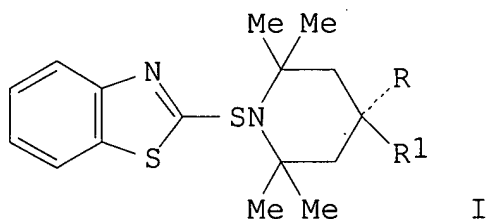
● Na

- IC ICM C07C051-235
- INCL 562538000
- CC 46-3 (Surface Active Agents and Detergents)  
Section cross-reference(s): 23, 38
- IT **2226-96-2D**, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy,  
reaction product with chloromethylated styrene-divinylbenzene  
copolymer 9003-70-7D, Divinylbenzene-styrene copolymer,  
chloromethylated, reaction product with nitroxide  
(prepn. of alkoxyalkanoic acids for anionic surfactants and  
emulsifying agents)

L63 ANSWER 11 OF 14 HCA COPYRIGHT 2005 ACS on STN  
101:23463 2-(2,2,6,6-Tetramethyl-1-piperidinylothio)benzothiazoles.  
(Sumitomo Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP  
59010583 A2 **19840120** Showa, 6 pp. (Japanese). CODEN:

JKXXAF. APPLICATION: JP 1982-119487 19820708.

GI



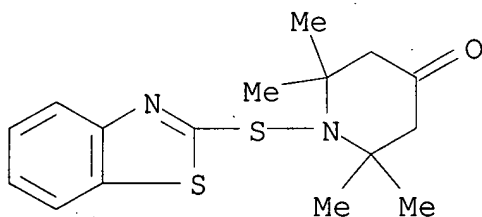
AB The title compds. (I; RR1 = O; R, R1 = H, HO; H, MeO; H, octadecyloxy; H, AcO; H, dodecanoyloxy), useful as vulcanization accelerators imparting ozone **stability**, were prepd. from benzothiazole-2-thiol. Thus, 32 mmol 4-hydroxy-2,2,6,6-tetramethylpiperidine in 36 mmol 10% aq. HCl was treated concurrently with 30 mmol aq. Na benzothiazole-2-thiolate and 35 mmol 10% aq. **NaOCl** at 20.degree. over 2 h to give 87% I (R = H, R1 = HO).

IT **90777-48-3P 90777-49-4P 90777-50-7P**  
**90777-51-8P 90777-52-9P 90777-53-0P**

(prepn. and use of, as vulcanization accelerator)

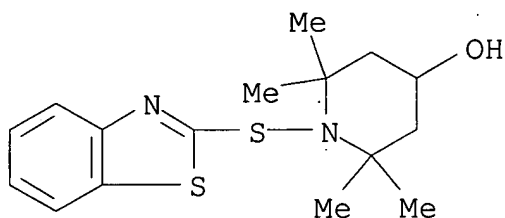
RN 90777-48-3 HCA

CN 4-Piperidinone, 1-(2-benzothiazolylthio)-2,2,6,6-tetramethyl- (9CI)  
 (CA INDEX NAME)



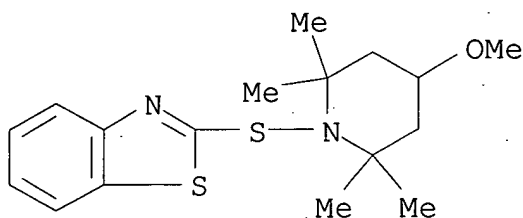
RN 90777-49-4 HCA

CN 4-Piperidinol, 1-(2-benzothiazolylthio)-2,2,6,6-tetramethyl- (9CI)  
 (CA INDEX NAME)



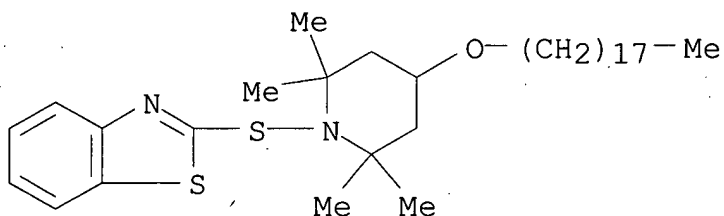
RN 90777-50-7 HCA

CN Piperidine, 1-(2-benzothiazolylthio)-4-methoxy-2,2,6,6-tetramethyl-  
(9CI) (CA INDEX NAME)



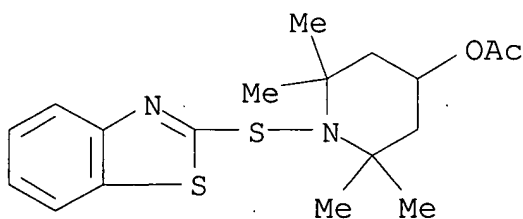
RN 90777-51-8 HCA

CN Piperidine, 1-(2-benzothiazolylthio)-2,2,6,6-tetramethyl-4-  
(octadecyloxy)- (9CI) (CA INDEX NAME)



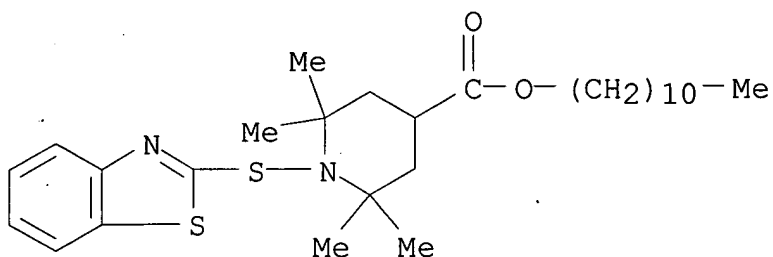
RN 90777-52-9 HCA

CN 4-Piperidinol, 1-(2-benzothiazolylthio)-2,2,6,6-tetramethyl-,  
acetate (ester) (9CI) (CA INDEX NAME)



RN 90777-53-0 HCA

CN 4-Piperidinecarboxylic acid, 1-(2-benzothiazolylthio)-2,2,6,6-  
tetramethyl-, undecyl ester (9CI) (CA INDEX NAME)

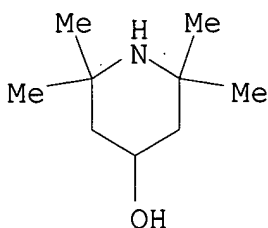


IT **2403-88-5**

(reaction of, with sodium benzothiazolethiolate)

RN 2403-88-5 HCA

CN 4-Piperidinol, 2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC C07D417-12; C08K005-47; C08L021-00

ICI C07D417-12, C07D211-00, C07D277-00

CC 28-7 (Heterocyclic Compounds (More Than One Hetero Atom))  
Section cross-reference(s): 39

IT **90777-48-3P 90777-49-4P 90777-50-7P**

**90777-51-8P 90777-52-9P 90777-53-0P**

(prep. and use of, as vulcanization accelerator)

IT **2403-88-5**

(reaction of, with sodium benzothiazolethiolate)

IT **2403-88-5**

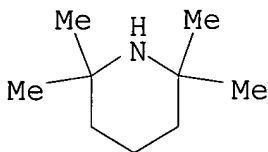
(reaction of, with sodium benzothiazolethiolate)

L63 ANSWER 12 OF 14 HCA COPYRIGHT 2005 ACS on STN

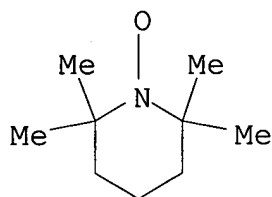
86:37183 New method of detecting singlet oxygen production. Lion, Y.; Delmelle, M.; Van de Vorst, A. (Dep. Phys. At. Mol., Univ. Liege, Liege, Belg.). Nature (London, United Kingdom), 263(5576), 442-3 (English) **1976**. CODEN: NATUAS. ISSN: 0028-0836.

AB **Stable** nitroxide radicals produced by the oxidn. of sterically hindered amines by O<sub>2</sub>(1.DELTA.g) are detected by ESR. Amines have a high specificity for O<sub>2</sub>(1.DELTA.g). The free radicals are detectable at concns. .gtoreq.100nM in aq. solns. and EtOH. Excited O<sub>2</sub>, produced by the reaction of H<sub>2</sub>O<sub>2</sub> with **NaOCl** or by energy transfer, was detected through the strong nitroxide

radical ESR signal when 2,2,6,6-tetramethylpiperidine was added.  
IT **768-66-1**  
(detection of singlet oxygen by ESR of nitroxides produced in  
oxidn. of)  
RN 768-66-1 HCA  
CN Piperidine, 2,2,6,6-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX  
NAME)

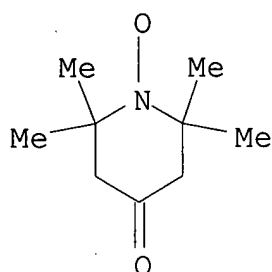


CC 79-5 (Inorganic Analytical Chemistry)  
Section cross-reference(s): 22, 65  
IT **768-66-1**  
(detection of singlet oxygen by ESR of nitroxides produced in  
oxidn. of)  
IT **768-66-1**  
(detection of singlet oxygen by ESR of nitroxides produced in  
oxidn. of)  
L63 ANSWER 13 OF 14 HCA COPYRIGHT 2005 ACS on STN  
77:87453 **Stable** free radicals. X. Photolysis of hindered  
N-chloroamines. Toda, Toshimasa; Mori, Eiko; Horiuchi, Hideo;  
Murayama, Keisuke (Cent. Res. Lab., Sankyo Co., Ltd., Tokyo, Japan).  
Bulletin of the Chemical Society of Japan, 45(6), 1802-6 (English)  
**1972**. CODEN: BCSJA8. ISSN: 0009-2673.  
GI For diagram(s), see printed CA Issue.  
AB Photolysis of the hindered N-chloroamines, 1-chloro-2,2,6,6-  
tetramethyl-4-oxopiperidine (Ia), 1-chloro-2,2,6,6-tetra-  
methylpiperidine (Ib), and 1-chloro-2,2,5,5-tetramethyl-4-  
oxoimidazolidine (Ic), in benzene soln. were carried out in an ESR  
spectrometer cavity. The ESR spectra of the corresponding amino  
radicals IIa, IIb, and IIc were observed in evacuated solns. In  
solns. contg. oxygen, amino radicals IIb and IIc readily reacted  
with oxygen to give the corresponding **stable** nitroxide  
radicals from the shapes of spectra and g-values. Amino radical IIa  
did not react with oxygen. Although the amino radicals could not be  
isolated, their formation was confirmed by the isolation of a  
coupling product with a benzyl radical generated from  
dibenzylmercury.  
IT **2564-83-2 2896-70-0 38951-80-3**  
(ESR of)  
RN 2564-83-2 HCA  
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



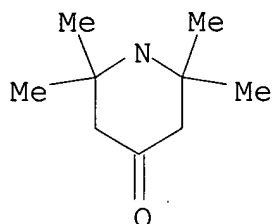
RN 2896-70-0 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



RN 38951-80-3 HCA

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)

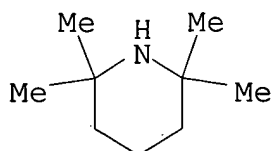


IT 768-66-1 826-36-8

(chlorination of, by sodium **hypochlorite**)

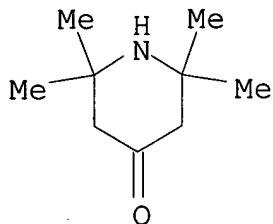
RN 768-66-1 HCA

CN Piperidine, 2,2,6,6-tetramethyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 826-36-8 HCA

CN 4-Piperidinone, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

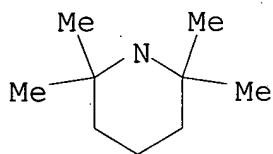


IT 38951-81-4

(oxidn. of, ESR in relation to)

RN 38951-81-4 HCA

CN 1-Piperidinyl, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

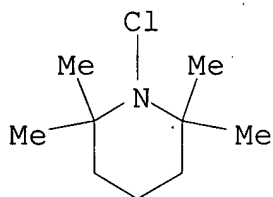


IT 32579-76-3 38951-83-6

(photolysis of, mechanism of)

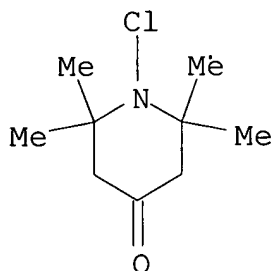
RN 32579-76-3 HCA

CN Piperidine, 1-chloro-2,2,6,6-tetramethyl- (8CI, 9CI) (CA INDEX NAME)



RN 38951-83-6 HCA

CN 4-Piperidinone, 1-chloro-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

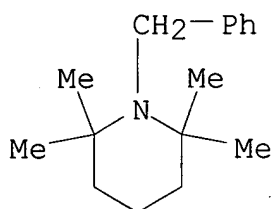


IT **783-76-6P 935-22-8P 33973-59-0P**

(prepn. of)

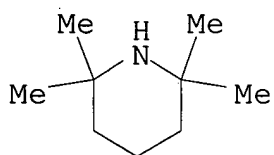
RN 783-76-6 HCA

CN Piperidine, 2,2,6,6-tetramethyl-1-(phenylmethyl)- (9CI) (CA INDEX NAME)



RN 935-22-8 HCA

CN Piperidine, 2,2,6,6-tetramethyl-, hydrochloride (7CI, 8CI, 9CI) (CA INDEX NAME)

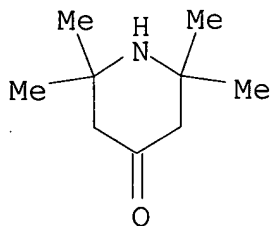


● HCl

RN 33973-59-0 HCA

CN 4-Piperidinone, 2,2,6,6-tetramethyl-, hydrochloride (9CI) (CA INDEX NAME)





● HCl

- CC 22-4 (Physical Organic Chemistry)  
 IT Radicals, properties  
     (ESR of **stable** nitroxide and amino)  
 IT **2564-83-2 2896-70-0** 21485-42-7  
     **38951-80-3**  
     (ESR of)  
 IT **768-66-1 826-36-8** 16256-42-1  
     (chlorination of, by sodium **hypochlorite**)  
 IT **38951-81-4** 38951-82-5  
     (oxidn. of, ESR in relation to)  
 IT **32579-76-3 38951-83-6** 38951-85-8  
     (photolysis of, mechanism of)  
 IT **783-76-6P 935-22-8P 33973-59-0P**  
     (prepn. of)  
 IT **783-76-6P 935-22-8P 33973-59-0P**  
     (prepn. of)

L63 ANSWER 14 OF 14 HCA COPYRIGHT 2005 ACS on STN

75:152881 Polyurethane fiber **stabilization**. Murayama, Keisuke; Morimura, Shoji; Suzuki, Isamu; Shikawa, Suzushi (Sankyo Co., Ltd.; Asahi Chemical Industry Co., Ltd.). Jpn. Tokkyo Koho JP 45040793 B4 **19701221** Showa, 6 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP 19680608.

GI For diagram(s), see printed CA Issue.

AB Polyamide (or polyester) polyurethane fibers were **stabilized** by addn. of dipiperidino polysulfides [I, n=2-4; X=CH<sub>2</sub>, CO, CHOH, CHOBz, CHO<sub>2</sub>CNHPh; R<sub>1</sub>=Me, Ph, cyclohexyl; R<sub>2</sub>=H, Me; or R<sub>1</sub>R<sub>2</sub>=(CH<sub>2</sub>)<sub>5</sub> or (CH<sub>2</sub>)<sub>4</sub>CHMe], optionally with a phenolic **stabilizer**. Thus, a HO-terminated poly(ethylene adipate) (mol. wt. 1250) was treated with 4,4'-diphenylmethane diisocyanate and cured with H<sub>2</sub>N(CH<sub>2</sub>)<sub>4</sub>NH<sub>2</sub> to give a polyurethane. This polyurethane was mixed with 0.6% bis(4-oxo-2,2,6,6-tetramethylpiperidino) disulfide (I, n=2, X=CO, R=R'=Me) and spun to give a fiber which remained colorless and retained 79.5% of its strength after 15 hr irradiation. (JIS-1044-3-8)

and turned light yellow, and retained 90.2% of its strength after 24 hr at 50.degree. in 0.5% aq. **NaOCl**, whereas unstabilized fiber turned yellow and brown, with 71.2 and 69.2% strength loss, in the resp. tests. A polyurethane from HO-terminated polycaprolactam and 2,4-tolylene diisocyanate, cured with methylenebis(o-chloroaniline), was similarly **stabilized**.

- IC C08G
- CC 39 (Textiles)
- ST polyurethane fiber **stabilization**; spandex fiber **stabilization**; piperidino polysulfide **stabilizer**; sulfide piperidino **stabilizer**
- IT Fiber, spandex  
(**stabilizers** for, bis(tetramethyloxopiperidino)disulfide as uv)
- IT Light, ultraviolet, chemical and physical effects  
(**stabilizers**, bis(tetramethyloxopiperidino)disulfide as, for spandex fibers)
- IT Light, ultraviolet, chemical and physical effects  
(**stabilizers**, bis(tetramethyloxopiperidino)disulfide as, for spandex fibers)